

JPRS 76729

30 October 1980

Worldwide Report

NUCLEAR DEVELOPMENT AND PROLIFERATION

No. 68



FOREIGN BROADCAST INFORMATION SERVICE

NOTE

JPRS publications contain information primarily from foreign newspapers, periodicals and books, but also from news agency transmissions and broadcasts. Materials from foreign-language sources are translated; those from English-language sources are transcribed or reprinted, with the original phrasing and other characteristics retained.

Headlines, editorial reports, and material enclosed in brackets [] are supplied by JPRS. Processing indicators such as [Text] or [Excerpt] in the first line of each item, or following the last line of a brief, indicate how the original information was processed. Where no processing indicator is given, the information was summarized or extracted.

Unfamiliar names rendered phonetically or transliterated are enclosed in parentheses. Words or names preceded by a question mark and enclosed in parentheses were not clear in the original but have been supplied as appropriate in context. Other unattributed parenthetical notes within the body of an item originate with the source. Times within items are as given by source.

The contents of this publication in no way represent the policies, views or attitudes of the U.S. Government.

PROCUREMENT OF PUBLICATIONS

JPRS publications may be ordered from the National Technical Information Service, Springfield, Virginia 22161. In ordering, it is recommended that the JPRS number, title, date and author, if applicable, of publication be cited.

Current JPRS publications are announced in Government Reports Announcements issued semi-monthly by the National Technical Information Service, and are listed in the Monthly Catalog of U.S. Government Publications issued by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

Indexes to this report (by keyword, author, personal names, title and series) are available from Bell & Howell, Old Mansfield Road, Wooster, Ohio 44691.

Correspondence pertaining to matters other than procurement may be addressed to Joint Publications Research Service, 1000 North Glebe Road, Arlington, Virginia 22201.

30 October 1980

WORLDWIDE REPORT
NUCLEAR DEVELOPMENT AND PROLIFERATION

No. 68

CONTENTS

WORLDWIDE AFFAIRS

French Seek Lease on Queensland Uranium Mine (THE COURIER-MAIL, 13 Aug 80).....	1
France-China Sign Nuclear Powerplant Pact (AFP, 17 Oct 80).....	3
Australians Reduce Price on Uranium to U.S. (THE FINANCIAL AUSTRALIAN, 15 Aug 80; THE AUSTRALIAN, 26 Aug 80).....	4
Depressed Market Responsible, by Peter Day Australian Opposition's Comment, by Tom Uren	
Australian Uranium Sale May Involve Soviet (THE SYDNEY MORNING HERALD, 14 Aug 80; THE AGE, 15 Aug 80).....	8
Sale to Finland, by J. N. Pierce Soviet Processing Expected, by Nigel Wilson	

ASIA

AUSTRALIA

Nuclear Laws Reviewed in Wake of Ranger Contracts (Various sources, various dates).....	10
Opposition Stand Explained Anthony Explains in Parliament, by Ian Perkin Distribution of Shares, by Ian Porter	

Press Examines Queensland Uranium Theft Case (Various sources, various dates).....	14
Security Crackdown Announced, by Gary O'Neill	
Officials, Public React, by Richard Battley	
Theft Temed 'Incredible', Editorial	
Monitoring Officers' Remarks	
Accused Free on Bail	
Union Ban on Removal, by Malcolm Colless	
Uranium a Poll Issue, by Lorenzo Boccabella	
Press Reports Aftermath of Fifties' Nuclear Tests (Various sources, various dates).....	22
'Coastal Nuclear-Dump', by Ian McArthur	
Defense Minister Claims	
Decontamination of Planes	
Radiation Monitoring of Nuclear Ships Described (THE WEST AUSTRALIAN, 15 Aug 80).....	25
Prospector Plans Queensland Uranium Search (THE FINANCIAL AUSTRALIAN, 18 Aug 80).....	27
Nuclear Industry Workers Make 'Harassment' Claims (Deirdre Macken; THE AGE, 23 Aug 80).....	28
Mary Kathleen Uranium Ltd Reports Profits (J. N. Pierce; THE SYDNEY MORNING HERALD, 26 Aug 80).....	29
ALP Opposes West Australian Nuclear Development (THE WEST AUSTRALIAN, 26 Aug 80).....	30
Law To Enable Sale of Ranger Shares Passed (THE WEST AUSTRALIAN, 29 Aug 80).....	31
Government To Sign Convention on Nuclear Crimes (Sally Gibson; THE AGE, 28 Aug 80).....	33
Scientist Develops Plan for Nuclear Waste Disposal (Nicholas Rothwell; THE WEEKEND AUSTRALIAN, 30-31 Aug 80).....	35
Briefs	
Uranium Development Campaign	38
Senator's Protest	38
Uranium Inquiry Scored	39
Secret Uranium Talks	39
Nuclear Referendum Support	39
Pro-Uranium Council Head	40
Nuclear Shelters Discussed	40
Nuclear Waste Disposal	40
Nuclear Controls	41

BANGLADESH**Briefs**

Nuclear Plant Approved

42

INDIA

U.S. Nuclear Fuel for Tarapur

(Editorial; PATRIOT, 16 Sep 80).....

43

Tarapur Atomic Plant To Use Mixed Oxide Fuels

(THE MUSLIM, 4 Oct 80).....

45

INDONESIA

Geologists To Study Uranium Deposits

(KOMPAS, 5 Aug 80).....

46

PAKISTAN

Kisenko Comments on Pakistan's Nuclear Preparations

(Moscow Radio, 13 Oct 80).....

48

Briefs

Transfer of Nuclear Technology

49

SOUTH KOREA**Briefs**

Early Nuclear Plant Completion

50

LATIN AMERICA**ARGENTINA****Briefs**

Uranium Refining Plant

51

BRAZIL

Angra-I To Undergo Final Tests in October

(O GLOBO, 6 Sep 80).....

52

NUCLEBRAS Planner Predicts 30-40 Nuclear Plants in 30 Years

(O ESTADO DE SAO PAULO, 13 Aug 80).....

55

CNEN Chief Discusses PRG Accord, Aims of Program

(FOLHA DE SAO PAULO, 28 Aug 80).....

56

NUCLEN Urges Construction of Eight Reactors

(FOLHA DE SAO PAULO, 28 Aug 80).....

58

Firms Have Not Received Nuclear Equipment Orders (JORNAL DO BRASIL, 9 Sep 80).....	59
Goldemberg Cites Risks of Sao Paulo Coast Nuclear Plants (O ESTADO DE SAO PAULO, 12 Sep 80).....	60
VENEZUELA	
Moscow University Graduates Power Engineer (Abilia Moreno; RESUMEN, 14 Sep 80).....	62
NEAR EAST AND NORTH AFRICA	
IRAQ	
Safety of Iraqi Nuclear Reactor Questioned (LE MONDE, 11 Oct 80).....	68
SUB SAHARAN AFRICA	
SOUTH AFRICA	
UCOR Document Partly Reveals Enrichment Process (Jaap Boekkooi; THE STAR, 29 Sep 80).....	69
'Spindryer' Process Further Details	
WEST EUROPE	
DENMARK	
Electric Power Firms Study Nuclear Waste Storage (Peter Kjelstrup; BERLINGSKE TIDENDE, 28 Sep 80).....	72
FEDERAL REPUBLIC OF GERMANY	
Scientist Discusses Thorium Reactor Research (Rudolf Schulten Interview; DIE WELT, 5 Sep 80).....	74
FRANCE	
Future of Nation's Breeder Reactor Program Discussed (Olivier Drouin, Jacqueline Giraud; LE NOUVEL ECONOMISTE, 22 Sep 80).....	77
ITALY	
Local Council Requests Closure of Nuclear Plant (IL MATTINO, 14 Sep 80).....	82
SWEDEN	
National Power Administration: More Nuclear Plants Not Needed (Borge Karlsson; DAGENS NYHETER, 26 Sep 80).....	84

FRENCH SEEK LEASE ON QUEENSLAND URANIUM MINE

Brisbane THE COURIER-MAIL in English 13 Aug 80 p 3

[Text] The French mining company Minitome has applied for a second uranium mining lease in the Ben Lomond area near Townsville.

Minitome is a subsidiary of the French conglomerate Pechiney. Last April it was granted Queensland's first uranium mining lease for several decades.

The new application to the Charters Towers Mining Wardens Court seeks a lease for the mining of uranium, copper, lead, zinc, silver and molybdenum over 20 square kilometres, about 60 kilometres west of Townsville.

The area adjoins the original site at Ben Lomond.

Minitome's application was lodged on April 22 and objections close on September 19. The court hearing is expected to begin in early October.

Townsville Regional Conservation council coordinator, Mr Adrian Jeffries, yesterday predicted that the court case could be prolonged by objections from antinuclear groups.

In Mount Isa television cameras, and geiger counters might be used to tighten security at the Mary Kathleen Uranium mine.

The company general manager, Mr Colin Smith, indicated this from Melbourne yesterday, following the alleged theft of 2200 kg of uranium oxide from the mine.

Mr Smith said the company might have to employ permanent security personnel at the production end of the plant, but he would not like to see this happen.

In Brisbane yesterday, radon gas, a radioactive and tasteless, odorless, colorless gas, was highlighted as an additional hazard associated with the mining and handling of yellowcake--or uranium concentrate.

Griffith University physics lecturer, Dr S. Myhra, said the gas was an inevitable by-product of yellowcake.

It became a major hazard if inhaled, when radioactive particles would lodge in the lungs and contribute to lung cancer in the victim.

Dr Myhra said precautions, such as the wearing of protective clothing, were normally taken when mining or milling the uranium concentrate.

The gas was a product of radium decay. It had a short half-life and ultimately formed lead.

When yellowcake was encapsulated in sealed containers the amount of radon rose to moderate levels.

When opened, the gas escaped. "You wouldn't want to stand near it," Dr Myhra said.

The gas would take about 30 minutes to escape and disperse, he said. After the initial opening of the container there was no problem.

In Melbourne, yesterday the Movement Against Uranium Mining called for a full public inquiry into the alleged theft at the Mary Kathleen mine.

CSO: 5100

WORLDWIDE AFFAIRS

FRANCE-CHINA SIGN NUCLEAR POWERPLANT PACT

OW171046 Hong Kong AFP in English 1041 GMT 17 Oct 80

[Text] Beijing, 17 Oct (AFP)--France and China have signed an "agreement in principle" on the purchase by China of two French nuclear power stations in China, visiting French President Giscard d'Estaing announced here today.

He said the two countries had found a "solution" to a "financing problem" which had led to the suspension in 1978 of the sale to China of two French power stations of 900 megawatts each, worth about 950 million dollars.

"We were able to offer a financing formula which takes into account the particular nature of China's situation and therefore the way is now clear for continuing technical discussions between the firms," the French leader said.

He added that according to the Chinese side these discussions would be able to get under way "shortly".

President Giscard d'Estaing stressed that the agreement in principle covered the two power stations in their entirety.

French Minister in Charge of Administrative Reforms Jean-Francois Deniau meanwhile indicated that the two power stations comprised "two units of 900 megawatts each placed side by side, which means a reduction of the cost insofar as there are joint services".

He said China had not determined the location of these stations. The choice is between Guangzhou and Shanghai, he added.

As foreign trade minister, Mr Deniau personally negotiated the agreement on the two power plants in 1978. He said the agreement had to be "shelved" at the time in view of China's "readjustment" policy.

The French minister noted that China's leaders had now decided to revive the agreement after realising that in the context of their country's economic development, "energy is a bottleneck".

On financial provisions of the agreement, Mr Deniau said they were "the general conditions we set regarding nuclear power plants."

CSO: 5100

AUSTRALIANS REDUCE PRICE ON URANIUM TO U.S.

Depressed Market Responsible

Canberra THE FINANCIAL AUSTRALIAN in English 15 Aug 80 p 1

[Article by Peter Day: "Ranger Cuts Uranium Price on U.S. Contract"]

[Text]

A STEEP fall in the US uranium market this year is believed to have forced Australia's Ranger deposit partners into cutting the price for last month's 4.5 million lb yellowcake sale to the American Electric Power Company virtually at the point of signing the contract.

The *Financial Australian* has learned that the Ranger partners — Peko-Wallend Ltd and EZ Industries Ltd — had all but signed a contract to sell five million lb of uranium to the American Electric Power Co over 10 years, based on a then current market price of \$US32 a lb.

Negotiations on the contract had proceeded to the final stage — to the point where a press release was prepared announcing its completion — when the continuing precipitous fall in the spot price allowed the American utility to rewrite it, based on a lower current uranium value of marginally over \$US31 a lb.

The amount of uranium covered was also reduced — from five million to 4.5 million lb — and the delivery period shortened from 10 to nine years, with the overall effect for the Ranger partners being a cut in the current value of the deal from \$US160 million to \$US140 million.

The episode illustrates the enormous bargaining strength of those US utilities still in the depressed uranium market — and while conditions normally surrounding such contracts allow for price reviews, based on spot market changes, present indications are that future reviews are

more likely to be downward than upward.

The price on which the Ranger contract was based was at the absolute rock bottom of this year's market, which has plunged 28 per cent from \$US43 a lb in January to the current price of \$US31.50, as quoted by the Nuclear Exchange Corporation of California, which tracks prices for the industry.

SCARE

The American Electric Power Co's position would of course have been further strengthened by the fact that the Ranger partners were — and presumably still are — desperate for contracts to lift production to economic levels.

But the Ranger partners' position is no worse — and probably a good deal better — than that of large numbers of US uranium mines, many of which have closed altogether as demand dried up in the wake of the Three Mile Island scare.

The construction of dozens of nuclear power plants has been suspended, and the US Nuclear Regulatory Commission has refused to issue a single unrestricted operating licence.

This has led to the so-called "uranium shuffle," in which companies have been closing down mining operations, preferring instead to trade in cheap uranium bought from overstocked utilities.

In the current depressed industry conditions, Australian mining operations such as Ranger have a decided advantage over many US uranium companies, since the Australian deposits are generally richer, and they can afford to continue mining

when prices make it uneconomical for US operators.

A typical example of the failing US miners is the small Todilto Exploration and Development Company, which has been selling about 75,000 tonnes of crude ore a year to major producers United Nuclear and Homestake.

President, Mr George Warnock, says that last year the company could profitably mine ore containing as little as 1.2 lb of yellowcake a tonne - but at current prices it must average 3 lb a tonne.

"We fully expect to be one of the casualties," he says. "The slump is costing us the future."

With 10 per cent of uranium miners having been laid off this year, Mr Bill Stevens, president of one of the biggest producers in the US, Kerr-McGee Nuclear Corporation, says: "Everyone is pulling their caps down over their ears and waiting for a change in the weather."

The company, which last year went into the red with a loss of \$US200,000, has not made a single spot sale so far this year, and it is unlikely the "weather" will improve.

"The outlook is bad for at least the next half decade," says Mr Stevens.

The turning by those utilities still in the market to foreign producers, such as the Ranger partners, rubs salt into the mining industry's wounds.

Mr Geoff White, senior vice-president of the Nuclear Exchange Corporation, says: "In a bloody price war, foreign producers could probably come close to closing the US industry down."

A 1964 law which forced US utilities to use only domestic uranium has been gradually modified to allow them to use increasing amounts of imported fuel - this year, a maximum 30 per cent foreign uranium is permitted, and that will rise to 100 per cent by 1984 - provided likely industry pressure for protection is resisted.

While the utilities are in a strong position when it comes to dealing with producers, they are not making much hay out of the situation - the suspension of many of their nuclear plants has meant massive costs, and they would apply enormous

political pressure to resist any move by the local miners to restrict foreign uranium purchases.

The cancellation of nuclear power units around the country has cost utilities thousands of millions of dollars and the result of this is higher (and intensely unpopular) higher power rates for consumers, or failing utilities, which raises the spectre for public authorities of having to take over loss-making power operations.

DEPENDENCE

That gives the utilities political muscle to insist on their right to buy cheap foreign uranium - although it also means the country is developing yet another form of energy dependence.

The position of the Detroit Edison Company is typical of utilities around the country - it was forced to cancel two planned nuclear units in March resulting in a pre-tax accumulated cost of \$US34 million.

It has applied to recover \$US50 million after tax over the next five years, but finance vice-president, Mr John Johnson, points out that the company's credit rating has fallen in the last six months.

Of the 88 nuclear plants now licenced for construction in the US, many are running eight years behind schedule - and each day of delay costs an average \$US500,000 in interest and inflation.

The Long Island Lighting Company in New York, for example, has been building an 820 megawatt nuclear plant since 1973 at an original proposed cost of \$US300 million - it will be finished in 1983 (optimistically) at a presently estimated \$US2200 million.

The American Electric Power Co's subsidiary, the Indiana and Michigan Electric Co, could no doubt have talked up similar good reasons for insisting on its pound of flesh from Peko and EZ.

And compared with their US mining counterparts, the Ranger partners can consider themselves lucky to be making sales at all.

Australian Opposition's Comment

Canberra THE AUSTRALIAN In English 26 Aug 80 p 8

[Article by Tom Uren in "Letters" column: "Uranium Under a Cloud"]

[Text]

SIR -- Peter Day's article, *Ranger Cuts Uranium Price* On U.S. Contract 15/8, informatively describes the depressed state of the U.S. uranium market. The article reports that the American Electric Power Company was able to squeeze considerable price concessions out of the Ranger partners. The same can now be said for the Japanese and West German interests which have taken equity holdings in Ranger.

The price of uranium, and growth in Western world demand for it, have been steadily falling for some time. The spot price of uranium, as quoted by the Nuclear Exchange Corporation, actually peaked in real terms during 1976-77 at \$US40 per pound and has declined since, most dramatically in the past 12 months. The price quoted for last month was \$US22 per pound in 1976 dollars.

This downward trend can be attributed to deep seated problems in the nuclear power industry. The industry is unable to resolve serious problems such as the proliferation of nuclear weapons, disposal of nuclear waste and the decommissioning of old reactors. It has great trouble finding sites for new nuclear power stations because of public concern about their safety.

These factors, which have been highlighted by people's anti-nuclear movements, have contributed to considerable increases in the capital and operating costs of nuclear power and the burden it places on the public purse. It is clear that the costs (both private and public) of nuclear power are far higher than the industry's earlier claims and far higher than alternative sources of energy.

At the same time growth in demand for electricity has slowed in most Western countries. For example, sales by the United States' biggest electricity supplier, the Tennessee Valley Authority, actually declined in 1979 on the previous year.

So cold, hard economics are a major cause of the slump in nuclear power programs and the uranium market. But the industry's very future, and the power of a technocratic élite to determine this, are also under challenge in many countries. That challenge will continue to grow.

¹³The slump in the nuclear industry is not confined to the United States, nor is it just a temporary outfall from the Harrisburg accident. A general decline in the ordering rate for nuclear power stations began well before Harrisburg. The same trend can be seen throughout the Western world, except in France, where particularly authoritarian measures are used to insulate the nuclear industry from public questioning and opposition. In OECD countries outside of France and the United States, only three new orders for nuclear power stations were placed in 1976, four in 1977 and none in 1978 or 1979. While seven major Western countries are toolled up to build 50-60 reactors a year, total OECD orders were only 19 last year and 10 the year before.

Even in the Soviet Union whose nuclear power program is much smaller than the United States' and has been scaled down in recent years, there is now an emergence of open scientific questioning of the industry.

It is, therefore, not surprising that uranium buyers have the upper hand in negotiations over uranium prices. But what is most disturbing is the way in which the Fraser Government has progressively weakened nuclear safeguards to meet the demands of uranium customers. Only last week in Parliament the Deputy Prime Minister, Mr Anthony, blatantly defended the sale of uranium to Finland and other European countries which will result in Australian uranium passing into the Soviet Union for enrichment.

The Fraser Government has just increased defence spending to record levels because it views recent Soviet actions as the greatest threat to world peace since World War II. Yet at the same time it is prepared to allow the raw material for nuclear bombs to pass into Soviet hands.

It is because of serious unresolved problems such as the contribution of the nuclear power industry to an increased threat of nuclear war that Labor opposes the mining and export of Australia's uranium. The clear message for the mining companies and international financiers is that a Federal Labor Government will repudiate any commitment of the Fraser Government to the mining and export of uranium.

TOM UREN

Opposition Spokesman for
Urban and Regional Affairs
Canberra

CSO: 5100

AUSTRALIAN URANIUM SALE MAY INVOLVE SOVIET

Sale to Finland

Sydney THE SYDNEY MORNING HERALD in English 14 Aug 80 p 21

[Article by J. N. Pierce: "Qld Mines To Sell Uranium to Finland"]

(Text)

Queensland Mines Ltd now has firm sales contracts for one-third of its 12,000 tonne Nabarlek uranium oxide resource through an agreement yesterday to supply 816.5 tonnes over nine years to Finland — the first country with which Australia signed a safeguards agreement.

Deliveries to the Finnish power utility Teollisuuden Voima Oy Industria Kraft Ab (TVO) will begin next year, subject to Government approvals.

Contract terms were not disclosed but at current prices the value of the sale would be more than \$60 million.

QM already has long-term contracts totalling 3,175 tonnes with the Kyushu and Shikoku electric power companies in Japan as well as letters of intent with the same utilities for a further 1,624 tonnes.

Deliveries under the Japanese contracts up to the end of 1979 totalled about 368 tonnes, all of which had been "borrowed" from the Australian Atomic Energy Commission.

QM's Nabarlek project began producing yellowcake early in June and on present indications will have an output significantly exceeding the plant's 1,000 tonnes a year annual capacity.

The AAEC borrowings have to be progressively repaid out of this production.

The Deputy Prime Minister and Minister for Trade and Resources, Mr Anthony, yesterday described the contract as a significant step forward in Australia's trading relationship with Finland.

It comes less than a month

after Peko and EZ, the two existing corporate partners in the Ranger project, wrote separate contracts to supply the American Electric Power Co with 4.5 million lb (2,041 tonnes) of uranium oxide over nine years from 1982.

Although both West Germany and Switzerland are likely to be customers for Ranger uranium oxide under proposed agreements, the QM-TVO agreement is the first signed by an Australian uranium producer with a European utility since Mary Kathleen Uranium's 1956 contract with the United Kingdom Atomic Energy Authority.

Australia signed a safeguards agreement with Finland on July 20, 1978, in its first such pact with a potential uranium oxide customer. A similar agreement was signed a few days later with Britain.

The Finnish agreement came into force on February 9 of this year.

Finland's use of energy is relatively high because of its climate and geography and its past imports of oil have been high. It has four nuclear generating plants totalling more than 2,000 megawatts either built or under construction.

Soviet Processing Expected

Melbourne THE AGE in English 15 Aug 80 p 1

(Article by Nigel Wilson)

[Text]

CANBERRA: — Australian uranium supplied to Finland will be processed in the Soviet Union. A spokesman for the Deputy Prime Minister, Mr Anthony, confirmed this last night.

Earlier a Federal Opposition frontbencher, Mr Tom Uren, called on Mr Anthony to make public the details of arrangements for the sale, which was announced on Wednesday. Queensland Mines will supply the Finns with 800 short tons of uranium a year for eight years beginning in 1981, in a deal worth about \$50 million.

Plutonium

Earlier this year Mr Anthony told Federal Parliament that all uranium needed for power generation in Finland had to be enriched in the Soviet Union under a deal extending until 1980. Mr Uren said yesterday there were also arrangements between the Soviet Union and Finland for the export of Finland's spent nuclear fuel to the Soviet Union for reprocessing and plutonium separation.

"To allow Australian uranium to pass into the Soviet Union would be wholly inconsistent with the Government's policy towards the Soviet Union and the Prime Minister's statement that its action in Afghanistan represents the greatest threat to world peace

since the second world war," Mr Uren said.

Government officials indicated last night that formal negotiations with the Finnish Government had produced arrangements which would satisfy Australia's nuclear safeguards policy. They said that when Australia's nuclear safeguards agreement with Finland was tabled in Parliament earlier this year a letter was also made available which spelt out the requirements on processing or enrichment.

Accounted for

Basically this said Australia would not object to Finland's arrangement with the Soviet Union as long as it was not inconsistent with the safeguards policy. In practice this means that all Australian uranium processed for the Finns in the Soviet Union will have to be accounted for — all that goes in will have to come out, including the tails, or residue. Apparently recent Government negotiations have produced satisfactory assurances.

Mr Anthony on Wednesday hailed the contract as a significant step forward in Australia's trading relations with Finland.

CSO: 5100

NUCLEAR LAWS REVIEWED IN WAKE OF RANGER CONTRACTS

Opposition Stand Explained

Perth THE WEST AUSTRALIAN in English 12 Aug 80 p 17

(Text) Canberra: The Federal Opposition made it clear yesterday that it would keep its promise to repudiate new uranium mining agreements if it won the next election.

The Labor Party's spokesman on urban and regional affairs, Mr T. Uren (NSW), said that no previous government could bind an incoming government in this area.

The Deputy Prime Minister, Mr Anthony, said on Sunday that the Atomic Energy Act would be amended to allow the sale of the Government's 50 per cent share in the Ranger uranium project in the Northern Territory to go ahead.

The amendments, to clarify the operating status of the new consortium "on behalf of the Commonwealth," were interpreted as being designed to allay the fears of German, Swiss and Japanese firms planning to invest in Ranger that a Labor government could stop the project.

However, Mr Uren indicated that this would not stop Labor from carrying out its policy commitment.

Repudiate

"We have given notice that a Labor government would repudiate any new commitment entered into by a non-Labor government," he said.

Mr Uren said that the Government had been trying to sweep uranium under the carpet as an election issue.

But the introduction of the Ranger legislation would highlight the issue. It would also link the ALP in a clear coalition with the Australian Democrats against the Government.

"The first thing you will find
driving outside are your own
limits."

Mr. Anthony also said that
it is expected that all of
the budget items may be included
if passed by the Senate.

July 1997 - Vol. 22, No. 7

1947-1948

Canberra 2600, Australia

[Article in Press]

100

THE PRINCIPAL concern at present is gearing up for the expected boom in the uranium mining and nuclear power industries with a wide-ranging review of Australian nuclear energy laws.

Deputy Prime Minister and
Drug Authority and Parliament yesterday. He has con-
ferred the use or review of the
law to Judge if they are
appropriate for the future de-
velopment of the nuclear
industry.

The review came out a week after the GM memo that regular fuel had been taken from the Navy's $\Delta-1$ and $\Delta-2$ Blue Angels F/A-18 Hornets.

It also follows the development of massive new U.S. claims for the sale of Australian uranium on export markets by the Ranger project, EK Resources and Freeport and by the South African Uranium Mines.

1900 the Ranger and Forest
Service department is the North-
ern T. Ranch.

Mr Anthony told Parliament that the decisions on the review had been taken after Prime Minister, including the Chief Minister of the Northern Territory, Mr Paul Everingham, had expressed concerns over the Federal Government's increasing broad powers under the Alcohol Control Act.

He has the power and
desire whether this is to be
done in a military, leg-
islatve or administrative, repre-
sentation and control of another
government.

RECORDED
1968

According to the old Swiss
poets, the first man who
had the idea of making
the world a better place
was the Devil. The Devil
is the author of all evil
things, and he is the author of
the Devil. The Devil is the
Devil.

1900-1901
1901-1902
1902-1903
1903-1904
1904-1905
1905-1906
1906-1907
1907-1908
1908-1909
1909-1910
1910-1911
1911-1912
1912-1913
1913-1914
1914-1915
1915-1916
1916-1917
1917-1918
1918-1919
1919-1920
1920-1921
1921-1922
1922-1923
1923-1924
1924-1925
1925-1926
1926-1927
1927-1928
1928-1929
1929-1930
1930-1931
1931-1932
1932-1933
1933-1934
1934-1935
1935-1936
1936-1937
1937-1938
1938-1939
1939-1940
1940-1941
1941-1942
1942-1943
1943-1944
1944-1945
1945-1946
1946-1947
1947-1948
1948-1949
1949-1950
1950-1951
1951-1952
1952-1953
1953-1954
1954-1955
1955-1956
1956-1957
1957-1958
1958-1959
1959-1960
1960-1961
1961-1962
1962-1963
1963-1964
1964-1965
1965-1966
1966-1967
1967-1968
1968-1969
1969-1970
1970-1971
1971-1972
1972-1973
1973-1974
1974-1975
1975-1976
1976-1977
1977-1978
1978-1979
1979-1980
1980-1981
1981-1982
1982-1983
1983-1984
1984-1985
1985-1986
1986-1987
1987-1988
1988-1989
1989-1990
1990-1991
1991-1992
1992-1993
1993-1994
1994-1995
1995-1996
1996-1997
1997-1998
1998-1999
1999-2000
2000-2001
2001-2002
2002-2003
2003-2004
2004-2005
2005-2006
2006-2007
2007-2008
2008-2009
2009-2010
2010-2011
2011-2012
2012-2013
2013-2014
2014-2015
2015-2016
2016-2017
2017-2018
2018-2019
2019-2020
2020-2021
2021-2022
2022-2023
2023-2024
2024-2025
2025-2026
2026-2027
2027-2028
2028-2029
2029-2030
2030-2031
2031-2032
2032-2033
2033-2034
2034-2035
2035-2036
2036-2037
2037-2038
2038-2039
2039-2040
2040-2041
2041-2042
2042-2043
2043-2044
2044-2045
2045-2046
2046-2047
2047-2048
2048-2049
2049-2050
2050-2051
2051-2052
2052-2053
2053-2054
2054-2055
2055-2056
2056-2057
2057-2058
2058-2059
2059-2060
2060-2061
2061-2062
2062-2063
2063-2064
2064-2065
2065-2066
2066-2067
2067-2068
2068-2069
2069-2070
2070-2071
2071-2072
2072-2073
2073-2074
2074-2075
2075-2076
2076-2077
2077-2078
2078-2079
2079-2080
2080-2081
2081-2082
2082-2083
2083-2084
2084-2085
2085-2086
2086-2087
2087-2088
2088-2089
2089-2090
2090-2091
2091-2092
2092-2093
2093-2094
2094-2095
2095-2096
2096-2097
2097-2098
2098-2099
2099-20100

Paul's 4th year at E. 7.
Guruji's 1st year
had 6. 30 am - 12. 30 pm

Am. J. Ophthal. 20: 206
© 1955 by the American Academy of Ophthalmology and Otolaryngology

10. *Leucania* *luteola* (Hufnagel) *luteola*
11. *Leucania* *luteola* (Hufnagel) *luteola*
12. *Leucania* *luteola* (Hufnagel) *luteola*
13. *Leucania* *luteola* (Hufnagel) *luteola*

1. *Chlorophytum comosum* L.

Chlorophyll a
Chlorophyll b
Carotenoids
Phycoerythrin
Phycocyanin

Offer to the Arizona Energy
Co. from AIA to lease
over the Ranger project and to
reorganize the ownership share-
holders in the company that
should be in the hands of
Arizona companies.

Coverco Investors had
already made arrangements to ar-
range finance for the project
before they got a share of
the \$100 million deal.

Mr. Atkinson said his amendment was to put this issue of the States beyond the control of the Federal Government by giving the States the right to prohibit the entry of Negroes into their States.

...and the administration final-
ized the sale of these interests
for \$12 million to the
plaintiff as well as reh-
abilitation of all previous ex-
-posures could be listed as
part of the administration's case.

and we have to a question of
the same nature.

... and that information
is to the effect showed
about 36 per cent of the
men who worked in
mines in 1900 will
have been trained in the No-
vember "Book" - 36 per cent for
West Virginia, 38 per cent for
Alabama, 37 per cent for West Vir-
ginia, 30 per cent for Florida and
20 per cent for Kentucky and

...that the new Parliament would be the result of the conviction that most of the seats in western Europe in 1950 would be

Distribution of Shares

Melbourne THE AGE in English 23 Aug 80 p 27

(Article by Ian Porter: "Ranger Float Will Raise Over \$500m")

(Text) Energy Resources of Australia, the company which will own and develop the Ranger uranium mine, will have effectively raised more than \$500 million by the time all its shareholders buy their shares in the imminent float.

It is believed about 410 million \$1 shares will be issued.

EZ Industrien will get 125 million of the shares and an undisclosed cash sum in return for turning over its Ranger stake to ERA, according to a statement from EZI yesterday.

EZI's exploration partner, Peko-Wallsend, is also expected to take up 125 million shares, representing 30.5 per cent of ERA.

EZI's statement detailed the ERA stakes to be held by the three West German power companies and the four Japanese companies which will double as ERA's main customers.

In all, the seven companies will be required to subscribe for 98.4 million ERA shares. This will represent 24 per cent of ERA's issued capital.

It is believed the 250 million ERA shares to be held by EZI and Peko will represent 61 per cent of ERA, leaving 62 million shares of 15 per cent for the Australian public.

Details of the float are still under wraps but EZI's release yesterday indicates that the premium on the shares may be as low as 24 cents a share.

Although EZI did not say how much cash it would get along with its ERA shares, the company did say it would immediately lend back to ERA about \$30 million.

This would indicate that the premium may be 24 cents a share although it is not certain whether EZI will be ploughing back all the cash received for its Ranger stake or only part.

The German companies took the lion's share of the foreign equity available in ERA.

They will subscribe for 57.4 million shares, or 14 per cent, while the four Japanese companies will subscribe for 41 million shares representing 10 per cent.

The equity to be held by the two groups is in line with the amounts of yellowcake each group will buy.

It was announced on Monday that the German companies would take 20,370 tonnes between 1982 and 1996 while the Japanese companies would take 13,418 tonnes in the same period.

EZI listed a series of conditions on which its sale and lend-back plan with ERA hinged.

One stipulation related to the use by ERA of \$US390 million in loan facilities which have been organised by foreign lenders.

The Government must amend the Atomic Energy Act to clear the way for the sale of its half stake in Ranger.

CSO: 5100

PRESS EXAMINES QUEENSLAND URANIUM THEFT CASE

Security Crackdown Announced

Canberra THE AUSTRALIAN in English 12 Aug 80 p 1

(Article by Gary O'Neill)

[Text] THE Federal Government yesterday ordered an urgent and severe tightening of security to protect uranium from theft or loss following allegations that 2200kg of uranium oxide, known as yellowcake, had been stolen from Mary Kathleen Uranium Ltd in Queensland.

Announcing the crackdown, the Minister for National Development and Energy, Senator Carrick, admitted the existing system of monitoring uranium stocks was deficient.

He said successive governments had placed a low priority on monitoring the movement of uranium around the country.

Senator Carrick said the Government would impose strict new checks on the mining, milling and processing of uranium at all stages.

His statement highlights the lack of control over the movement of uranium oxide. There are three storage areas for uranium oxide in Australia - at mine sites at Mary Kathleen (Queensland) and Nabarlek (Northern Territory) and at the government depot at Lucas Heights (NSW). Stocks of isotopes and refined uranium are also held at the Lucas Heights reactor, at research establishments and in hospitals.

The Federal Government was a part-owner of Mary Kathleen at the time it is alleged the uranium oxide went missing, between April 1977 and July 1978. (Uranium stealing charges against a man in the Mt Isa Magistrate's Court have not been proven.)

Senator Carrick said the Government could

not be held responsible for any lack of security. The conduct of the venture had been left to normal business practices.

He suggested the Government had no way of knowing if uranium had been stolen or lost, but stressed there was little danger of terrorism based on stolen uranium oxide.

Senator Carrick said it was a "long haul to produce fissionable materials from uranium oxide" and doubted the material would be stolen with a view to the production of nuclear weapons.

But he admitted there were other extortionist uses for the oxide which did not involve any enrichment processing. Pollution of drinking water was one possibility.

The Federal Opposition spokesman on uranium mining, Mr Tom Uren, said the alleged theft highlighted the risk of uranium being diverted for use in nuclear weapons.

"There are several governments with active nuclear weapons programs which are prepared to pay high prices and go to great lengths to obtain nuclear materials and technology," he said.

The alleged disappearance of more than 2000kg of yellowcake comes as a serious embarrassment to the Prime Minister, Mr Fraser, the Deputy Prime Minister, Mr Anthony, and the Minister for Foreign Affairs, Mr Peacock, who have repeatedly claimed Australia's export safeguards are "second to none". . .

Officials, Public React

Brisbane THE COURIER-MAIL in English 12 Aug 80 p 1

[Article by Richard Battley: "Security Clamp on Uranium"]

[Text] The Federal Government has ordered immediate tighter security on uranium mines amid calls for a royal commission into Mary Kathleen, allegations of industrial incompetence, and political protests.

The order follows the discovery of two tonnes of uranium concentrate — yellowcake — at a Sydney warehouse 11 days ago.

At a special press conference yesterday in Canberra, the National Development and Energy Minister, Senator Carrick, said uranium mining companies would have to maintain "the most rigid safeguards and the most rigid inventories in terms of weights and amount of yellowcake."

This would ensure that discrepancies would be revealed very quickly.

Senator Carrick said the yellowcake found in Sydney "could well have come" from the Mary Kathleen mine, 55 km east of Mount Isa.

He said checks were being made to see if more yellowcake was coming from Mary Kathleen.

In Nambour, Senator Keefe (ALP, Qld) said in view of this, the mine should be closed until a total audit of its yellowcake stockpiles were made.

He telegrammed the Prime Minister, Mr Fraser, demanding that the government order a royal commission into uranium mining in Australia.

"On August 3, I visited Mary Kathleen and saw yellowcake being transported from one section of the mine to another, and at any stage it could have been hijacked," the telegram said.

"On July 24 I pointed out the lack of security at the Mary Kathleen mine. Received reply from Senator Carrick that all safeguards were being observed.

"I now draw your attention to (alleged) theft of two tonnes of yellowcake."

The Australian Democrats leader, Senator Chipp, who called for a moratorium on uranium mining when The Courier-Mail highlighted the lax security at Mary Kathleen on July 25-26, said yesterday from Adelaide that an immediate public inquiry into Australian uranium mining was needed.

"The government should rewrite the permits to mine uranium in Australia, and it should make a declaration to parliament on precise security measures and checks it proposes to ensure that they are carried out," he said.

"The Australian people should not be worried by alleged yellowcake theft. The company should ensure that yellowcake is securely stored."

In Sydney, Professor Charles Kerr, one of three commissioners who investigated the Ranger uranium project in the Northern Territory in 1972, said it was another instance of bad management.

"The yellowcake could not have been guarded properly. It adds to the incompetent image we have of the nuclear power industry," he said.

"Unless the industry puts its own house in order and people are assured that there are stringent security measures, the government will have to act."

"People are becoming increasingly alarmed over uranium."

In Canberra the Returned Servicemen's League national president, Sir William Keys, who had pleaded that every security measure should be taken at Mary Kathleen, said the Mary Kathleen mine was badly managed.

"If it were a gold or diamond mine, there would be tight security. The company (Mary Kathleen Limited, a wholly-owned subsidiary of Conzinc Riotinto Ltd) is doing a disservice to the community," he said.

"It has handled the security and its public relations in a very amateurish way."

In Brisbane, the state Opposition Leader, Mr Casey, said it was amazing that uranium ore could be discovered in Sydney.

"Obviously, the company has handled its security in a most haphazard way, and in so doing had caused great public concern," he said.

"A future Labor government would permit Mary Kathleen to fulfil its contracts only if all yellowcake could be totally accounted for."

The Australian Railways Union national president, Mr Dunne, said the rail shipment of uranium concentrate from Mary Kathleen to Brisbane would be banned from January 1981.

"We are saying today what we have been saying all along — there is just not enough security. The safeguards are inadequate," he said.

The Campaign Against Nuclear Power (Q) said yesterday the "dangerously inadequate nature of the safeguards in the uranium industry had been highlighted."

Meanwhile, in Melbourne, the Mary Kathleen Uranium general manager, Mr Colin Smith, said tighter security geared towards the prevention of small quantities of yellowcake being stolen probably would be decided by the end of the week.

Theft Termed 'Incredible'

Brisbane THE COURIER-MAIL in English 12 Aug 80 p 4

[Editorial: "Guarding the Yellowcake"]

[Text] It is almost incredible that two tonnes of uranium yellowcake worth about \$145,000 could disappear from Mary Kathleen mine without being noticed.

The disclosure has come after public attention was drawn last month to the lack of security at Mary Kathleen.

An inspection by a COURIER-MAIL staff writer found uranium stored in an unguarded shed and an adjacent wire-fenced enclosure.

Uranium is one of the most sought-after commodities in the world. Many nations might go to great lengths to obtain it. Some have.

Three years ago a shipload of 200 tonnes of uranium disappeared in mysterious circumstances on the high seas between Antwerp and Genoa. It was suggested then that a nation requiring uranium to develop a nuclear weapon had hijacked this cargo.

Australians may feel that this could not happen here. But why couldn't it? Australia is not noted for its strict application of security.

It is certain that our casual attitude to guarding uranium already has been noted overseas.

The general manager of Mary Kathleen Uranium, Mr Colin Smith, says that security at the mine site has been increased, and will be increased further. Indeed, it must be, and without delay.

This is not a matter which should be left entirely to the company.

The Commonwealth Government has a strong obligation to ensure that uranium produced in this country does not disappear.

Meanwhile the mining company should have a thorough check of its production and sales records, and stocks, to make sure no more is missing.

Monitoring Officers' Remarks

Perth THE WEST AUSTRALIAN in English 13 Aug 80 p 26

[Text] Sydney: The federal officer monitoring uranium mining in the Northern Territory, Mr Robert Fry, said yesterday that he was not aware of yellowcake security arrangements in the Territory.

Mr Fry, the supervisory scientist responsible for policing environmental safeguards at the uranium sites in the Alligator Rivers region, said that security for the uranium oxide was arranged between the mining companies and the Australian Safeguards Office.

The assistant director of the safeguards office, Mr Reg Ryan, said that the office did not have enough staff to constantly police its security requirements.

Regulatory Body

It operated as a regulatory body and its officers made only occasional visits to the mining and processing sites.

Doubts about the adequacy of security measures in yellowcake storage and handling arose after the alleged theft of two tonnes of the radioactive material from the Mary Kathleen uranium mine in Queensland.

According to Mr Ryan security arrangements at Nabarlek, the only NT mine so far to process its uranium ore into yellowcake, are similar to those at Mary Kathleen.

Delivering a lecture at the New South Wales Institute of Technology in Sydney yesterday, Mr Fry said that his role was restricted to surveying the strictly environmental impact of uranium mining.

Controls on transport of yellowcake had recently been legislated by the NT Government but these were directed at potential environmental hazards and not at security.

The major environmental restriction was prohibition of the transportation of yellowcake through Arnhem Land during the wet season because local Aborigines feared that trucks would damage roads and lose their loads in flooded rivers.

Mr Ryan said that the Federal Government policy, implemented by the safeguards office, was to follow the requirements of the International Atomic Energy Agency in its Information Circular 225.

Management

This document called for the use of "prudent management practices" in handling yellowcake, protecting it for its commercial value and against-the nuclear proliferation hazard.

But Mr Ryan refused to disclose details of a security arrangements.

In Melbourne the Movement against Uranium Mining has called for a public Inquiry into the alleged uranium theft.

A MAUM convenor, Dr Joe Camilleri, has condemned the Government's "inept and deceitful handling of the alleged theft."

He has called for the resignation of the Minister for National Development and Energy, Senator Carrick.

Dr Camilleri said it was extraordinary that the company and the Government--which is a shareholder in Mary Kathleen--could not have known about the disappearance of the yellowcake for the best part of two years.

Accused Free on Bail

Brisbane THE COURIER-MAIL in English 14 Aug 80 p 1

[Text] Mount Isa--A man charged with the theft of \$145,200 worth of uranium oxide--yellowcake--from Mary Kathleen mine was granted bail in Mt Isa Magistrates Court yesterday.

James Alexander McDonald, 52, a process worker, was granted bail with a \$5000 surety on condition that he surrender his passport and report to police three days a week.

McDonald appeared in Mt Isa court on Monday and was remanded in custody until August 19.

He was not asked to plead and McDonald, who was not represented, did not ask for bail.

A police prosecutor on Monday, Sgt Billings said police did not oppose bail but asked for a substantial surety on the grounds that McDonald was a single man with no ties in Queensland. Sgt Billings said the offence was a serious one.

McDonald is on a charge of having stolen 2200 kg of uranium oxide from the mine between April 30, 1977 and July 1, 1978.

McDonald was represented by Mr R. L. Smith, of Moffatt and Associates, of Mt Isa.

Union Ban on Removal

Canberra THE AUSTRALIAN in English 14 Aug 80 p 1

[Article by Malcolm Colless, political correspondent]

[Text] A quantity of uranium oxide allegedly stolen from Mary Kathleen Mine in Queensland has been stranded by union bans in a laboratory at the Atomic Energy Commission's establishment at Lucas Heights in Sydney.

The oxide, known as yellowcake, has become a focal point of union demands for a pay rise of up to \$50-a-week.

It is not known how much of the 2200kg of yellowcake is involved but, according to informed sources, laboratory staff are "very uneasy" about its presence.

The sources said the radiation from the yellowcake was extremely low but laboratory staff were upset that any risks should be taken at all.

According to the sources, the yellowcake was taken to the atomic research establishment about a week ago for examination.

But it is only in the past day or so that it has been caught up in a net of union industrial action in support of pay demands.

The latest stage of rolling bans has hit the movement of material around the Lucas Heights plant and has affected the yellowcake which was being stored in a laboratory.

Hearing Today

The bans have been imposed by trade staff in support of demands for a substantial pay increase of up to \$50 a week.

The plant management has referred the matter to the Arbitration Commission and is understood to be concerned about the effects of continued industrial action.

The bans, which have been in operation for nearly a month, are understood, at one time, to have affected the reactor and effluent discharge from the establishment.

About 200 trade staff--members of metal unions--are involved in this dispute but another issue, over a \$25 a week demand, affects most of the 1100 employees at the establishment.

The NSW Labour Council is seeking the \$25-a-week rise as an industry allowance to compensate for isolation, pressures of work and the psychological effect of community opposition to the uranium industry.

Both disputes will come before Deputy Public Service Arbitrator Taylor in Sydney today.

Meanwhile, the issue of security in the uranium industry is expected to be raised at the ACTU executive meeting in Melbourne next week.

Union officials said they were concerned about security in mining areas.

Uranium a Poll Issue

Melbourne THE AGE in English 16 Aug 80 p 17

[Article by Lorenzo Boccabella]

[Text] Victoria's anti-uranium forces will mount campaigns in marginal Government seats in the general election amid the controversy over the alleged yellowcake theft.

As part of a change in strategy, the convenor of the Movement Against Uranium Mining, Mr J. Camilleri, this week announced plans to concentrate activity on the seats of Hotham and Latrobe where swings of a few per cent would oust the sitting members.

Mr Camilleri also called for a public inquiry into the "diversion" of about two tonnes of yellowcake from the Mary Kathleen uranium mine in Queensland.

(Yellowcake is the product of the first stage in the processing of uranium ore. It must be enriched for commercial or weapons use.)

Among the terms of reference suggested by Mr Camilleri for an inquiry were:

--Who was to be the ultimate recipient of the yellowcake?

--What is the present state of the international black market in uranium?

To complement the message, the movement held its first conference in a sparsely furnished room in Fitzroy's St Mark's Community Centre which was declared a "Nuclear Free Zone."

When it was put to Mr Camilleri that it was very difficult to audit the output of yellowcake at a mine site, he suggested that "there were no effective safeguards for any part of the nuclear fuel cycle."

He also said that a clever technician could use two tonnes yellowcake (the amount alleged to have been stolen) to make a crude atomic bomb, although this could not be done in Australia.

Mr Camilleri said the political campaign in Federal seats was a change in strategy for the movement which had avoided heavy commitments to elections because of the drain on resources.

The yellow cake issue and the publicity fallout from the nuclear power plant accident at Harrisburg in the US could make uranium a significant issue in the next election.

The movement has begun its political campaign because it fears that the Federal Government could relax safeguards on sales contracts to the EEC.

CSO: 5100

PRESS REPORTS AFTERMATH OF FIFTIES' NUCLEAR TESTS

'Coastal Nuclear-Dump'

Brisbane THE COURIER-MAIL in English 14 Aug 80 p 13

[Article by Ian McArthur in Caloundra: "'Little Danger' in Coastal N-dump"]

[Text] Drums containing radioactive plane parts from nuclear bomb tests had been dropped off the southern Queensland coast during the 50s, a former RAAF warrant officer claimed yesterday.

But a Queensland University professor said there was now little risk from the parts, involved in the bomb experiments in South Australia at that time.

Mr Noel Freeman, who was a sergeant at Amberley RAAF base in 1954, said he was in charge of a team of five men assigned to decontaminate Lincoln bombers used in the tests.

The work took 13 months, during which time waste and aircraft parts were sealed in concrete inside 44-gallon drums.

Mr Freeman said the men working with him wore normal working clothes and cotton gloves but took precautions as instructed by the RAAF.

These included frequent scrubings. Their work clothing was never worn elsewhere and was later destroyed. But some men who did similar work previously did not carry out such precautions.

Mr Freeman, who retired from the Air Force in 1960, is a real estate agent here.

He said the drums were dumped somewhere north-east of Brisbane away from shipping lanes, and "quite a few hundred kilometres out from the coast."

"Personally, I can't see any harm in it."

Queensland University Physics Department head, Professor P.D. Stacey, said yesterday the danger posed by the drums probably would not have been as great as the wastes from modern nuclear power stations.

Professor Stacey said metal drums would eventually corrode in the sea water. When that happened, water would seep through the porous concrete and whatever radioactivity was left would be dispersed.

"They would get covered by sediment and be protected by that," Professor Stacey said.

Mr Freeman said he had spoken out because he wanted to encourage others who might be suffering from the effects of radiation to come forward.

He said the Nuclear Veterans' Association wanted those involved to aid a survey designed to win compensation for possible victims of radiation.

The Nuclear Veterans' Association president, Mr Pat Crevey, said yesterday he had been assured that the Federal Government would not obstruct people from seeking information about service records.

Defence Minister Claims

Perth THE WEST AUSTRALIAN in English 20 Aug 80 p 39

[Text] Canberra: The Defence Department had received seven claims for compensation relating to the British atomic tests held in Australia, the Minister for Defence, Mr Killen, said yesterday.

In a written reply to a question on notice from the Opposition spokesman on urban and regional affairs, Mr T. Uren (NSW), Mr Killen said that two claims had been allowed and three disallowed and two were still being investigated.

The claims dated back to August 30, 1971.

The first successful claim was from a widow who said that her husband died of carcinomatosis after exposure to radioactive dust in the Woomera area, Mr Killen said. [as published]

The claim was at first disallowed by the Commissioner for Employees' Compensation, but after further specialist medical advice the claim was allowed.

The second successful claim, received on March 13, 1972, was for a nervous disorder allegedly attributable to anxiety, tensions and living conditions while engaged on decontamination duties at Maralinga.

Liability was accepted for the complaint, Mr Killen said.

Three claims were received in 1972, 1977 and 1978. They involved malignant melanoma of the back, allegedly due to exposure to radiation at Maralinga, chronic myeloid leukaemia, allegedly due to exposure while on seagoing duties off the Monte Bello Islands, and gout, allegedly caused by exposure to radiation at Maralinga.

All three claims were disallowed due to specialist medical opinion, Mr Killen said.

Decontamination of Planes

Melbourne THE AGE in English 21 Aug 80 p 3

[Text] Canberra.--During British nuclear tests in Australia during 1952-53 a total of 21 RAAF Lincoln aircraft flew through, or tracked, radioactive clouds on at least one occasion, it was revealed yesterday.

The Minister for National Development and Energy, Senator Carrick, said a normal Lincoln crew of seven members and about 80 aircrew would have been subject to decontamination procedures, such as "repeated showers" after each flight.

The tests were held at Montebello in Western Australia and Emu in South Australia.

Aircraft were also decontaminated at Woomera, Richmond, and Amberley airfields but not before they had visited air bases at Townsville, Queensland; Williantown, New South Wales; and Parafield, South Australia.

The Minister was answering a question from Opposition front-bencher Mr Tom Uren, stemming from allegations by a former RAAF wireless operator that he flew through radioactive mushroom clouds to collect dust samples and had not worn protective clothing on the first occasion.

Mr Lance Edwards claimed, on the ABC's 'Four Corners' programme earlier this year, that after his first flight he had showered 13 times to clean himself of radioactivity but, subsequent to the tests, had developed cancer of the throat.

Mr Anthony said all air crews from contaminated aircraft returning to Amberley air base in Queensland had been further checked for radioactivity and were made to shower when necessary.

CSO: S100

AUSTRALIA

RADIATION MONITORING OF NUCLEAR SHIPS DESCRIBED

Perth THE WEST AUSTRALIAN in English 15 Aug 80 p 17

[text] Nothing is taken to chance when a nuclear-powered ship ties up at HMAS Stirling, the Australian base on Garden Island.

Two days before the arrival a team flies into Perth from the Atomic Energy Research Establishment at Lucas Heights, Sydney.

Then--as happened when the U.S. submarine Tautog arrived yesterday--the naval police in the guardroom at the base are alerted to listen for the sound of a continuous high-pitched squeal.

A tiny "tweefer" in the guard-room is set to squeak an alarm if ever the ship's power plant starts emitting unacceptable radiation. The AERE team stores its gear at the State Emergency Service headquarters at Belmont.

The team sets up two detectors designed to monitor the emission of gamma particles.

The instruments provide a continuous read-out of the levels in the air. Their functioning is checked every day.

There had been times when the alarm went off, an officer said yesterday. It usually happened when the paper jammed in the machine.

When that happened the naval police called the SES, which immediately got in touch with the AERE men and the State x-ray laboratory.

The use of underwater monitoring had been discontinued as unnecessary.

After the ship left, the navy took samples of sediment from the anchorage bottom and sent them to Melbourne for analysis.

In the Legislative Assembly a report by the Department of Science and the Environment on four nuclear-powered ship visits last year has been tabled.

It says that analysis of marine samples taken before and after the visits to WA showed no traces of radioactive waste.

There had been no breaches of Australian public-health standards, the report said.

There was no evident increase in natural background levels of ionising radiation either during or after the visits.

Setting out the manner of nuclear monitoring, the report said that internal radiation exposure could be caused by the consumption of seafood contaminated by radioactive waste.

Samples from bottom sediments near the berths used by the ships and selected seafoods were checked for cobalt-60 and other signs of waste.

Portable metres were also used on docksides to check radiation.

CSO: \$100

PROSPECTOR PLANS QUEENSLAND URANIUM SEARCH

Canberra THE FINANCIAL AUSTRALIAN in English 18 Aug 80 p 2

(Text)

STURTS Meadows Prospecting Syndicate NL will spend over \$1 million in a drilling program to determine uranium mineralisation at its Helafels leases near Cloncurry, Queensland.

The company's geological consultant, A. C. A. Howe Australia Ltd said there was fairly extensive low grade uranium mineralisation at the surface.

Howe said this after an extensive ground survey of the Helafels leases, 30 km south-southwest of Cloncurry and 45km southeast of Mary Kathleen — the site of a producing uranium mine.

The most significant of the Helafels mineralised zones has a width of around 20m to 30m and a strike length of 40m. It continues for a further 600m with intermittent mineralisation.

The four other mineralised areas have strike lengths at the surface of between 500m and 1100m along which intermittent mineralisation occurs with widths of up to 10m.

Assays of the surface mineralisation gave low uranium values of the order of 10 ppm to 200 ppm or from 0.001kg of U3O8 a tonne to 0.78 kg a tonne.

"There is geological evidence to suggest that there has been leaching at the surface and consequently that the grades of samples taken of exposures may not may not be indicative," the report said.

"The potential of these extensive and encouraging surface indications requires testing at depth by drilling.

"The type of geological processes involved in the formation of the Helafels deposits indicates that there is a strong possibility of additional unexplored deposits existing beneath the silicated cappings."

"Testing of the underlying shear zone could produce additional reserves. In addition it is recommended that the deposits of younger age be looked for, based on the theory that leaching has occurred in the older deposits and that the minerals in solution would probably be redeposited at the present water table."

CSO: 5100

NUCLEAR INDUSTRY WORKERS MAKE 'HARASSMENT' CLAIMS

Melbourne THE AGE in English 23 Aug 80 p 3

[Article by Deirdre Macken: "We're Outcasts, say N-Workers"]

[Text] Sydney.--Workers in the nuclear industry say their jobs are making them outcasts, and they want to be compensated.

About 1100 workers at Sydney's Lucas Heights experimental reactor--the only one in Australia--are claiming an extra \$25 a week to make up for what they claim is harassment and damage to their property by the public.

An industrial officer with the New South Wales Labor Council, Mr Chris McArdle said yesterday: "Our people cannot go to a party without getting into arguments about their jobs. This has been happening for years, but since the Harrisburg incident, the abuse and aggression thrown at them has reached intolerable levels."

Mr McArdle said they could never leave their work at work. "As soon as someone hears about their job they get another ear bashing. They have become controversial because the industry is controversial."

Mr McArdle said there had been cases of workers' cars being damaged by anti-uranium groups. "Because of official stickers on the windscreens, cars have been daubed with paint and scratched," he said. "If these people were employed in any other industry, there's no way they would be subjected to this sort of treatment. When was the last time you heard of a worker in a chocolate factory being forced to justify the merits of sweets at a party?"

The \$25 claim is being made by several unions covering a wide range of workers at Lucas Heights, including clerks, draftsmen, engineers and security police.

If the unions are successful the workers will join policemen and taxation officers as people with socially disadvantaged jobs.

The special claim--the first in 14 years--will be heard by the Deputy Public Service Arbitrator, Mr Norm Taylor.

AUSTRALIA

MARY KATHLEEN URANIUM LTD REPORTS PROFITS

Sydney THE SYDNEY MORNING HERALD in English 26 Aug 80 p 13

[Article by J. N. Pierce: "Mary Kathleen Returns to Tax Payments"]

[Text]

Mary Kathleen Uranium Ltd ran into an income tax liability of \$5,634,000 in the first half of 1980 after its accumulated losses — at one stage nearly \$24 million — were finally wiped out by current earnings.

Although mechanical troubles and strikes held the June half-year's uranium oxide output down to 367.8 tonnes, or only 4.9 tonnes more than the corresponding 1979 level, pretax profit moved up from \$8,767,000 to \$11,661,000 after sales expanded by \$4.5 million to \$33.3 million.

The return to tax payments after 17 years left the company with a net interim profit of \$6,027,000 or 8.2c on each 25c share.

But as previously indicated, there will be no dividends until the two major shareholders, CRA Ltd and the Australian Atomic Energy Commission, are repaid the \$20 million they lent to MKU to bring it to profitability.

Apart from the resumed provisions for taxation, the latest profit was after interest of \$1,169,000 (down \$157,000), depreciation and amortisation of \$4,516,000 (up \$1,165,000) and Queensland Government royalties of \$722,000 (up \$218,000).

Investment and other income was up sharply from \$406,000 to \$1,661,000.

Referring to the alleged theft of uranium concentrates from the Mary Kathleen mine, yesterday's interim report says that it became apparent that the previous security measures were

inadequate against the progressive theft of small quantities of material.

"Immediate interim action was taken to increase the level of security over concentrates at Mary Kathleen," it says. "Permanent measures are being developed in co-operation with the Australian Safeguards Office."

The interim report also voices concern over the possibility of premature closing of the Mary Kathleen mine as a result of strikes and the major reversal of union attitudes towards the company.

"MKU is mining a comparatively low grade orebody and is selling into an increasingly competitive market," it says. "Costs are substantially increased and the life of the mine consequently decreased when an operation having a high proportion of fixed costs is not producing consistently."

The report that spun from the withdrawal of support by the Electrical Trades Union (which called on its members employed at Mary Kathleen to resign or face strong disciplinary action), there has been a resurgence of anti-uranium activity by sections of the trade union movement.

Although some unions supported the continuation of operations at Mary Kathleen, other unions and the ACTU executive had adopted strong anti-uranium resolutions.

MKU says that it is taking the intentions underlying these resolutions seriously. They not only represent a major reversal of attitude toward MKU but also represent an attempt to force a premature closure of the MKU operation.

CSO: 5100

AUSTRALIA

ALP OPPOSES WEST AUSTRALIAN NUCLEAR DEVELOPMENT

Perth THE WEST AUSTRALIAN in English 26 Aug 80 p 12

[Text] The ALP has given notice that it will repudiate any contracts for a nuclear power station signed by the WA Government before the next State election.

The move is part of a stronger anti-nuclear line taken at the party's State conference.

ALP policy had been not to allow a nuclear power station in WA till environmental safeguards have been established. However the conference agreed yesterday that a Labor Government would:

--Reject nuclear power as an option for electricity generation.

--Oppose the establishment of a uranium enrichment facility in the State.

--Reject the establishment of nuclear processing plants or the storage of nuclear wastes in W.A.

--Repudiate any contracts for a nuclear power plant signed before the next State election.

Adequate

The ALP believes energy conservation and renewable resources appear adequate to meet WA's foreseeable energy needs.

Delegates said that one way of stopping Sir Charles Court's nuclear power ambitions would be to indicate that the ALP would not stand by contracts signed during the life of his government.

The Premier had indicated during the State election campaign this year that he did not have a mandate for a nuclear power station. However, he could not be trusted on the issue.

AUSTRALIA

LAW TO ENABLE SALE OF RANGER SHARES PASSED

Perth THE WEST AUSTRALIAN in English 29 Aug 80 p 26

[Text] Canberra: The Federal Government pushed through legislation early yesterday to enable the sale of its share in the Ranger uranium project to private enterprise.

The Opposition voiced its disapproval and forced several divisions during debate on the Atomic Energy Amendment Bill.

Labor spokesmen reaffirmed the party's policy of repudiating any uranium-mining commitments of a non-Labor government.

Part of the legislation has been interpreted as designed to prevent Labor from carrying out its promises in relation to Ranger.

The amendments enable the formation of a new company to own Ranger. It consists of the Government's previous partners, Peko Wallsend and EZ Industries, Japanese and West German companies and public shareholders.

Opposition

The Opposition spokesman on minerals and energy, Mr P. Keating (NSW), said that Labor opposed uranium mining at Ranger.

This was in line with the policy that uranium should remain in the ground till the many problems troubling the industry had been solved, he said.

Labor's urban and regional development spokesman, Mr Tom Uren (NSW), said: "No legislation will prevent a Labor government from implementing this policy."

But the Minister for Trade and Resources, Mr Anthony said he doubted that Labor would carry out its policy.

"Are they really going to cancel the long-term contracts that have been entered into with our major trading partners?" he asked.

"It is just a lot of nonsense."

Contracts

Later, Mr Anthony announced the completion of contracts for uranium sales to West Germany and Japan.

He said they would be worth more than \$2000 million over the period from 1982 to 1996.

They call for the delivery by ERA of 34,000 tonnes of yellowcake.

CSO: 5100

AUSTRALIA

GOVERNMENT TO SIGN CONVENTION ON NUCLEAR CRIMES

Melbourne THE AGE in English 28 Aug 80 p 3

[Article by Sally Gibson]

[Text]

The Federal Government is expected to sign an international convention that creates eight classes of international crime involving nuclear materials.

A nuclear energy specialist with the Foreign Affairs Department said yesterday Australia was expected to sign the convention this year and ratify it in 1981.

The convention will be examined by State Governments and the Federal departments of Foreign Affairs, Trade and Resources, National Development and Energy, Science and Environment, and Attorney-General's

The convention has two objectives: to ensure the protection of nuclear material during international transport, and to make nuclear offences international crimes and ensure the necessary co-operation of nations.

The convention was negotiated by delegates from 58 countries, formulated by the International Atomic Energy Agency in Vienna and ready for signature on 3 March this year.

Australia sent a delegate to,

and provided a secretary for, the international meeting which for two years negotiated the terms of the Convention on the Physical Protection of Nuclear Materials.

Although Australia played a prominent role in the negotiations it does not adequately provide for the contingency raised recently by the theft of yellowcake from the Mary Kathleen mine in North Queensland.

Implications

Several serious implications are embodied in the convention. An examination of a copy of the convention obtained by 'The Age' and statements by Mr Ron Leeks, of Queensland's Campaign Against Nuclear Power, and Mr Paul Sieghart, a London barrister specialising in international human rights law, reveal the following implications:

YELLOWCAKE is not classified as "nuclear material". Consequently its international movement does not require the safeguards the convention gives enriched uranium. The convention

says it should be protected "in accordance with prudent management practice";

ELEVATION of nuclear offences to the status of international crime, means an offender can be tried regardless of where or by whom the offence was committed--if an Australian stole plutonium in America and was found in Brazil, Brazilian penalties would apply;

THE EIGHT classes of international crime include not only the theft, embezzlement or fraudulent obtaining of nuclear material, but also threats to steal nuclear material--perhaps making international criminals of a technician who threatened to take nuclear material from the plant to illustrate poor security, or a worker who casually breached safety rules by allowing plutonium oxide dust escape into the atmosphere.

THE CONVENTION carries the force of an extradition treaty. Wherever an offender is found, he or she must be detained, and either prosecuted and tried or extradited, even if there is not extradition treaty between the countries. Signing countries must give each other "the greatest measure of assistance in connection with criminal proceedings" and report the proceedings to each other.

THE CONVENTION sets up an international network for cooperation in co-ordinating recovery of stolen material and preventing its misuse.

Mr Leeks and Mr Sieghart fear this could seriously erode civil liberties. Mr Sieghart, writing in the British 'Bulletin of the Atomic Scientists' last May, said: "If the dangers of the nuclear industry are as great as the moderate analyst feared, and as the participating states now seem to accept, then security measures such as those outlined in this convention are clearly necessary.

"But the moderate will wonder what effect the gradual installation of these figures--and of future and more stringent ones, if those too are found to be necessary--will have on the open society in which he lives."

The Foreign Affairs spokesman explained yellowcake's exclusion "Yellowcake is a far less sensitive material and, as such, warrants a lesser level of protection; it is such a long way from misdeeds."

But the two tonnes of yellowcake stolen from the Mary Kathleen mine storage drums was sufficient to build at least one nuclear bomb.

The 58 countries that were party to the convention's negotiations included the United States, Canada, Argentine, Brazil, India, Pakistan, Egypt, Japan, most European and Eastern European and the USSR. China was not represented.

CSO: 5100

SCIENTIST DEVELOPS PLAN FOR NUCLEAR WASTE DISPOSAL

Canberra THE WEEKEND AUSTRALIAN in English 30-31 Aug 80 pp 1,2

[Article by Nicholas Rothwell: "Call for Uranium Trade-In"]

[Text] Processed uranium could be exported by Australia and the spent by-products returned for dumping, under a plan being developed by a leading scientist.

The waste would be dumped in stable rock formations throughout Australia, including some areas which have been designated Aboriginal sacred sites.

The plan, which aims to use uranium exports to control international nuclear proliferation, has been put forward by the inventor of the Synroc nuclear waste disposal process, Professor Ted Ringwood.

Synroc--short for synthetic rock--involves locking up nuclear waste in artificially-fused minerals whose stability makes them suitable for containing and isolating radioactive material.

Under Professor Ringwood's plan, Australia would also establish plants to produce uranium rods for lease to foreign countries for civil nuclear energy programs.

The waste would be seated in 4 km deep boreholes which could take the waste "from 100 very large nuclear power stations operating for a year," Professor Ringwood said.

Nuclear waste is disposed of in a single large dump in most countries, but Professor Ringwood hopes to overcome the reluctance of State governments to accept national responsibility for waste by scattering drill-hole dumps throughout the country.

His paper recommends storing the wastes in impermeable crystalline rock such as gabbro, but leading geologists doubt that enough gabbro can be found to take all the nuclear wastes.

Another difficulty is that outcrops of hard rocks often coincide with Aboriginal sacred sites. Sydney University geology expert, Mr Jim Ferguson, said most outcrops above gabbro layers as deep as the required 4 km would have religious significance to local people.

Professor Ringwood said on Friday each site would be reviewed by an independent assessment authority which would report on the geological stability of the region.

A University of NSW geologist, Professor F.G. Beavis, said gabbro deposits were "pretty rare" and there were few deep enough to suit the Synroc plan.

Professor Ringwood claims Synroc is the safest way of disposing of nuclear waste and is "far superior to other technologies."

He also claims his plan to lease uranium would eliminate the possibility of fuel rods being used for nuclear weapons. Furthermore, he said, the plan would also create new industry.

Waste created by nuclear reactors remains radioactive for up to a million years, and secure storage in stable geological formations is essential.

Suitable rock formations exist near these regions:

--NSW--Broken Hill, Gundagai, Mount Arrowsmith west of Whitecliff, Ben Bullen, Brogo, and Moryun.

--Western Australia--the Yilgarn mine, and several large regions of the Pilbara mainly on the Ophthalmia Range.

--South Australia--the Yorke and Eyre peninsulas.

--Queensland--the Cloncurry-Mt Isa area.

There are no suitable rock formations in Victoria or Tasmania and the Northern Territory has not been fully surveyed.

A spokesman for the Registrar of Aboriginal Sites for Western Australia said on Friday there were "a large number of sites of both archaeological and mythological significance" in the parts of the State which are geologically suitable.

The Federal Government has recently announced the sale of uranium to Finland which would be reprocessed in the Soviet Union.

Synroc is under consideration by the US Department of Energy as a method of storing waste when the US embargo on reprocessing of nuclear fuel is lifted.

If Synroc is selected, the decision would net multi-million dollar contracts for Australian industry to produce disposal equipment for the waste from more than 200 operational American civil nuclear reactors, each of which produces 40 tonnes of waste that must be reprocessed each year.

Radioactive elements such as the long-lived isotope cesium 137 would otherwise leak into the environment where they could expose humans to intense radiation.

The aim of the Synroc project was to produce a method of containment that would keep cesium, which is highly soluble, away from water at low temperatures.

Professor Ringwood said problems in the glass "vitrification" storage plan adopted by Britain and France, which must be inspected every 30 years, had been avoided in Synroc.

There was evidence that vitrified glass tanks holding nuclear waste became brittle when exposed to ground water.

CSO: 5100

AUSTRALIA

BRIEFS

URANIUM DEVELOPMENT CAMPAIGN--Darwin, (AAP)--The Northern Territory Government has foreshadowed a campaign to have the Jabiluka and Koongarra uranium deposits developed. The intention of the territory was made clear in the speech by the Administrator, Mr John England in opening the third Northern Territory Legislative Assembly following the general election for the 19 member House in June. There were major deposits of lead, zinc, gold and uranium that were unexplored because of technology or federal legislation, he said. "Development of these resources will be accelerated and in particular my government will be concerned to ensure that the development of the Jabiluka and Koongarra projects occurs as quickly as possible." Jabiluka is the Pancontinental deposit and Koongarra is owned by Noranda. There has been no development at either site. [Excerpt] [Brisbane THE COURIER-MAIL in English 20 Aug 80 p 21]

SENATOR'S PROTEST--Victorian Senator Jean Melzer wants a boycott of French perfumes and face creams until the French Government stops testing nuclear weapons in the Pacific. Senator Melzer, 54, ALP, claimed yesterday that Australian women were spending \$10 million a year on French cosmetics. "Women against uranium mining are determined that those French perfumes and face creams will stay on the shelves until the French Government ceased to test nuclear weapons in the Pacific," she said. Senator Melzer's call for the boycott is similar to a previous campaign against French perfumes, in 1972. "The French Government brushes aside the fears of Australians, saying there is no danger. If there is no danger, let them conduct the tests in the Mediterranean." Senator Melzer pointed out that the French had recently set off a nuclear test device twice the size of that which razed Hiroshima. People were killed on Mururoa Atoll and "nobody knows what fallout came Australia's way." "The Australian Government is supposed to be monitoring that fallout, but it has made no report to the Australian people; neither has it protested to the French Government and demanded the tests cease." [By Richard L'Estrange] [Text] [Canberra THE AUSTRALIAN in English 11 Aug 80 p 3]

URANIUM INQUIRY SCORLED--An internal inquiry by the Federal Government into the uranium industry was criticised yesterday by a senior Opposition MP. Mr Tom Uren, the Opposition's spokesman for urban and regional affairs, said the Government's decision to have an inquiry was an admission that the industry was full of problems. He said the review was a desperate attempt to overcome those problems with a minimum of public scrutiny. Mr Uren said the review's terms were remarkably wide-ranging, covering 10 Acts of Parliament, considerations affecting nuclear safeguards, environmental protection, physical security, US antitrust laws, defence, research and the effects of uranium mining on Aboriginal communities. "Yet the review is to be completed in only four months and at a time of a Federal election," he said. Mr Uren again emphasised that a Labor Government would repudiate any commitment by the coalition parties to the mining and export of uranium. He listed areas where nuclear policies had been marred by problems. The Government, in seeking to promote uranium exports, had watered down its nuclear safeguards on five occasions. It had found it necessary to amend the Atomic Energy Act five times. [Text] [Canberra THE FINANCIAL AUSTRALIAN in English 23 Aug 80 p 10]

SECRET URANIUM TALKS--A secret meeting was held in Adelaide last week between the South Australian Premier, Mr Tonkin, and a British Government Minister to discuss the State's uranium development. The talks were with the British Minister of State for Foreign and Commonwealth Affairs, Mr Blaker. Mr Tonkin confirmed yesterday that the talks were held on the establishment of a uranium enrichment plant in South Australia. But he would not give further details of the meeting. The South Australian Government also met with representatives of the Urenco-Centec consortium last week. The consortium's proposal for a uranium enrichment plant in South Australia's Iron Triangle region has been supported by the State Government's Uranium Enrichment Committee. It is believed Mr Blaker gave the Prime Minister, Mr Fraser a letter from British Prime Minister, Mrs Thatcher, supporting the Urenco-Centec proposal. Meanwhile, the Campaign Against Nuclear Energy group in South Australia has said Mr Tonkin needed to do more homework before a uranium enrichment plant was located in the State. A spokesman for the group, Sue Maywald, said yesterday: "The most recent report of the Atomic Energy Commission states there is a glut of enriched uranium until 1990." The group said President Carter's strategy on limited nuclear war, released the same day as Mr Tonkin's proposals, should be viewed with concern. [Text] [Canberra THE FINANCIAL AUSTRALIAN in English 12 Aug 80 p 3]

NUCLEAR REFERENDUM SUPPORT--The Australian Democrats have supported a State Liberal back-bencher's call for a referendum on nuclear power. Mr T. A. Herzfeld (Mundaring) said last week that West Australians should be given the opportunity to determine the nuclear-power question for themselves. The WA president of the Australian Democrats,

Mr Jack Evans, said yesterday that the Democrats had maintained for three years that the decision on nuclear power should be made by all the people of WA. "A decision on a matter that could determine the survival of the people of Perth should not be left to one politician, whether he is the Premier or the Prime Minister," he said. Mr Evans said that West Australians were not as gullible as the people of Three Mile Island in the U.S. or the residents near the Windscale nuclear reactor in England who had been led down the nuclear path before their safety could be guaranteed. West Australians did not need a potentially disastrous form of energy in a State that had enough coal and gas to last several centuries. Mr Evans called on people of all political persuasions to put pressure on the Premier, Sir Charles Court. [Text] [Perth THE WEST AUSTRALIAN in English 4 Aug 80 p 36]

PRO-URANIUM COUNCIL HEAD--Darwin--The Northern Land Council elected Gerry Blitner, 58, a pro-uranium miner from Groote Eylandt in the Gulf of Carpentaria, as its second chairman yesterday. He defeated Galarrmuy Yunupingu, one of the best known black Australians, for the post at the Council's annual meeting in Darwin. Mr Blitner was deputy chairman during the last three years and said he and Mr Yunupingu had some "hot arguments." On uranium mining and the development of Pancontinental's Jabiluka deposit and Noranda's Koongarra, in Arnhem Land, the new chairman saw "quite Aboriginal people were good chances" as long as consulted in the right manner. [as published] "They have had a year's run with (building the uranium mining town of) Fabiru, and they had had Nabariek (mine) working," he said. "I can't see why mining can't go on immediately if they have talks with the traditional owners." [Excerpts] [28 Aug 80 p 13]

NUCLEAR SHELTERS DISCUSSED--Melbourne City Council will investigate setting standards for building nuclear fallout shelters in the city. Councillor Robert McAlpine last night told the council that no regulations existed in Australia. "Melbourne has 340,000 people coming into its boundaries each day and given two hours' warning they would like to find a place in the event--and let's hope an unlikely one--of nuclear attack." He said there were fall-out shelters in Scandinavian cities and in New York. Councillor McAlpine said he had been told by the Melbourne Underground Railway Authority that the rail tunnels would not be suitable. The shelters will be referred to the council's strategy and city planning committee. [Text] [Melbourne THE AGE in English 2 Sep 80 p 3]

NUCLEAR WASTE DISPOSAL--Canberra: The Federal Government would not allow dumping of nuclear waste in Australia, the Government Leader in the Senate, Senator Carrick, said yesterday. "The Australian Government has one unequivocal view regarding the dumping of waste in Australia--it will not be allowed," he said. He was replying to the Labor Leader in the Senate, Senator Wriedt, who has asked if the Japanese Government was still interested in dumping its nuclear waste in Australia. [Text] [Perth THE WEST AUSTRALIAN in English 28 Aug 80 p 9]

NUCLEAR CONTROLS--Controls Australia insist upon to ensure that its uranium is not reprocessed into nuclear weapons are regarded as the most stringent in the world, the Minister of Foreign Affairs, Mr Peacock, told Parliament yesterday. He was replying at Question Time to the Deputy Opposition Leader, Mr Bowen, who said an article in the INTERNATIONAL HERALD TRIBUNE had said Australia's requirements on the reprocessing of uranium had now virtually been abandoned. Mr Bowen asked if there had been a change of Government policy and whether this explained secrecy on negotiations with the European Atomic Energy Community (Euratom). Mr Peacock said he had not seen the article but if it did not embrace four cornerstones of the Government's policy it would be inaccurate. There were the obligations under the Nuclear Non-Proliferation Treaty, the safeguards of the International Atomic Energy Association, bilateral agreements Australia sought from its customers, and support for international and multilateral improvement of safeguards. The minister said later that it would be inappropriate to comment on the Euratom negotiations, which were still going on. [Text] [Sydney THE SYDNEY MORNING HERALD in English 22 Aug 80 p 12]

CSO: 5100

BANGLADESH

BRIEFS

NUCLEAR PLANT APPROVED--The International Atomic Energy Agency has strongly recommended the Bangladesh proposal for setting up a nuclear powerplant in the country. The agency said Bangladesh [words indistinct] as a developing nation and qualifies to assume more responsibilities for its first nuclear project. Bangladesh has trained nuclear manpower to work in the implementation of its nuclear power program, the agency added. Meanwhile Bangladesh has approached Saudi Arabia for financing the country's first nuclear powerplant to be set up at Roopur, near Ishwardi in Pabna district, at an estimated cost of 6 billion taka. Several West European countries and the Islamic Development Bank may also be approached by the government shortly to mobilize funds for the project. The plant will have an initial capacity to generate 125 megawatts of electricity. It will be subsequently raised to 250 megawatts. With the completion of the first phase, the plant will save the country about 600 million taka every year by reducing fuel costs for power generation. [Text] [BK181202 Dacca Overseas Service in English 0445 GMT 18 Sep 80]

CSO: 5100

U.S. NUCLEAR FUEL FOR TARAPUR

BK221700 New Delhi PATRIOT in English 16 Sep 80 p 2

[Editorial: Nuclear Fuel]

[Text] If the U.S. Congress finally bars the shipment of enriched uranium for Tarapur, it may be a welcome end to a sordid and protracted attempt to blackmail India by keeping the bait hanging. Once the United States formalizes its unilateral breach of contract, India can go ahead and exert its utmost to meet the future fuel needs of Tarapur through its own resources or through the help of other friendly countries. It can also then have the freedom to reprocess the spent fuel which has been piling up at Tarapur.

The denial of contracted fuel supplies will tellingly demonstrate to developing countries the crucial need for absolute self-reliance in areas of sensitive technology, howsoever hard and long the road may be. Fortunately for India, the leadership of Jawaharlal Nehru and the far-sighted planning of Homi Bhabha had laid the foundation of a self-reliant nuclear India 25 years ago. In fact in Tarapur a turnkey job was accepted only for a quick demonstration of the benefits of nuclear power and international cooperation. The Indian nuclear development plan mainly linked on the natural uranium fired reactors for which India does not look outside for help today. Thus, it is Tarapur alone that needs enriched uranium and even for this a scheme for a uranium enrichment plant had been shelved deliberately on cost-benefit considerations. But ever since the U.S. designs became clear, some 3 years ago, Indian scientist have been working on a mixed oxide fuel as an alternative. Dr Homi Sethna, chairman of Atomic Energy Commission, has asserted that India will be prepared to meet the contingency of termination of fuel supplies or unacceptable delays. This is, indeed, a matter of pride for all Indians.

The U.S. double dealing has also eroded the credibility of the non-proliferation treaty. Even its formal commitment to the cause has been undermined not only by its underhand support to Israel and South Africa in the supply of nuclear materials but also in its total disregard of

the obvious link between safeguards and assured supplies. The United States should know that any attempt to deny assistance for a peaceful nuclear programme can only spur developing countries to get into the whole gamut of activities related to the nuclear fuel cycle. Such a policy of nuclear apartheid being pursued by the nuclear haves cannot but destroy the foundation of the non-proliferation treaty and all efforts for reducing world nuclear armaments. India, being one of the eight odd countries which have reached self-sufficiency in this field, has little need for outside supervision from the guardians of safety, for it has been firmly committed to the cause of peace at all times. The U.S. Congress should take into account the effect the American reneging is likely to have on other emerging nuclear nations of the world.

CSO: 5100

TARAPUR ATOMIC PLANT TO USE MIXED OXIDE FUELS

Islamabad THE MUSLIM in English 4 Oct 80 p 5

[Text] NEW DELHI, Oct 3: The Tarapur Atomic Power Plant near Bombay is moving towards the stage of using mixed oxide fuels as an alternative to uranium.

This process involves recycling of the plutonium contained in the spent fuel. If United States refuses to supply enriched uranium for the Tarapur Atomic Power Plant as per the 1963 agreement, India will be forced to rely on its own resources, one of which is to recycle the spent fuel.

At present India cannot do this, as there are some restrictions, under the agreement. A United States refusal to supply the uranium would amount to an abrogation of the 17-year-old agreement. India is expected to take a formal decision on the matter after knowing the U.S. stand.

Using the plutonium separated from Tarapur's spent fuel, it is

possible to keep the atomic plant running without depending upon enriched uranium from abroad, Indian scientists say.

The Tarapur plant, according to authoritative sources, is now moving towards a stage where it can use oxide fuel, a mixture of plutonium oxide and uranium oxide.

Because of the prolonged uncertainties about U.S. supplies of enriched uranium, the capacity of the Tarapur plant was reduced to 55 per cent early this year and later to a mere 15 to 30 per cent.

Since 1976, a refuelling programme has been under way at the Bhabha Atomic Research Centre (BARC). This programme could lead to the stage where plutonium contained in the spent fuel can be recycled for use to keep the plant running without dependence on foreign supplies of uranium.—UNI

CSO: 5100

INDONESIA

GEOLOGISTS TO STUDY URANIUM DEPOSITS

Jakarta KOMPAS in Indonesian 5 Aug 80 p 9

[Article: "BATAN Geologists Say: 'It's Possible That There Is Uranium in Peringating'"]

[Excerpts] BATAN (National Atomic Energy Agency) does not deny the possibility that there is high quality uranium and thorium in Peringating village, Aesesa Subdistrict, Ngada Regency, East Nusatenggara.

Governor Ben Mboi gave this news to KOMPAS last Thursday [31 July] based on information provided by two BATAN geologists who will make a thorough study of the possibility of uranium deposits, following up on the early July report by the practical geologist C. Castilio and Prof Dr Eng Yohannes.

The two BATAN geologists, Eng Syarwiyan Sastratenaya and Agus Soetriyono, in making a clarification to East Nusatenggara Governor Mboi last Wednesday, said Peringating, of course, is on the BATAN geological map. Peringating village and its environs have their own "color" on the map which indicates possible uranium and thorium deposits.

Therefore, Ben Mboi said, BATAN feels it "not impossible" that uranium and thorium can be found in Peringating. This news should not be "frightening," the two BATAN geologists said.

Rather, the two geologists indicated to the governor, there are greater deposits of this sort in places other than Peringating. They did not specify the location of these deposits which, they said, had an even greater potential.

On returning from Peringating with Castilio at the beginning of July, Prof Yohannes explained to the governor that he had never encountered radioactivity over such a wide radius as in Peringating. The indicators on radioactivity measuring devices, the scintillation and geiger counters which he took with him, surprised Prof Yohannes himself. His scintillation counter had indicated radioactivity to Boanio, about

30 kilometers from Peringating. On 28 July Governor Mboi had occasion to observe a test excavation made on the basis of Prof Yohannes' indicators. The excavation was intended to assist as far as possible in finding what produced the radioactivity and in discovering veins of radioactive minerals.

Although the digging barely reached a depth of 1 meter, nuggets were found which produced a reaction on the geiger counter. Castilio had estimated radioactive nuggets would be found at a depth of about 20 meters. The excavation was made at the foot of Tireng hill, 38 meters above sea level, where abnormalities had been found [by Castilio and] Prof Yohannes.

The two BATAN geologists who reported to Governor Mboi left for Peringating last Wednesday. They will remain there with Castilio to conduct a number of geological tests.

To facilitate the excavation, Governor Ben Mboi has ordered the Public Works Service to furnish stone boring equipment which would speed up the digging. Castilio used only a crowbar and a shovel for the test excavation.

6804
CSO: 5100

PAKISTAN

KISENKO COMMENTS ON PAKISTAN'S NUCLEAR PREPARATIONS

**LD132205 Moscow Radio in English to South and Southeast Asia 1400 GMT
13 Oct 80**

[Text] Next in our program of "The World Today" news analyst Oleg Kisenko takes a look at Pakistan's nuclear preparations: The Washington POST revealed a short while ago that assembly work was going on at a secret plant for (?regenerating) plutonium. The plant, situated near Rawalpindi, and whose existence had hitherto been unknown, will enable Pakistan to create and test its first nuclear bomb in the autumn of 1981, 2 years earlier than originally expected.

What the Washington POST has revealed is yet another confirmation of the reports that have long been appearing in the world press, namely that Pakistan's military administration is moving towards the production of a nuclear bomb of its own, something incidentally that the administration itself does not deny. Despite the treaty on the nonproliferation of nuclear weapons, a number of Western countries do not prevent Islamabad from obtaining the material, supplies and equipment for implementing its design. The plant near Rawalpindi, designed to produce two or three bombs a year, is being erected to speed up the program. Meanwhile at (Kahuta) near Islamabad, a big uranium enrichment plant is under construction. That enterprise will make it possible to later produce nuclear weapons on a much bigger scale. Simultaneously in various parts of the country testing grounds are being set up for the nuclear weapons.

It's characteristic that Islamabad's program for developing nuclear weapons is in line with the general trend of speeding up the country's militarization. Pakistan is intensively being pushed around this course by Washington and Beijing, who want to turn the country into an instrument for implementing their hegemonic plans in Southeast Asia. They are lavishly supplying Pakistan's army with the latest military hardware. The United States and China have already managed to turn Pakistan into an actual accomplice of their undeclared war against the Democratic Republic of Afghanistan. It's quite apparent that the military nuclear program, just as the country's militarization as a whole, is not in the interest of the people of Pakistan. Nobody is threatening that country and it would be only natural if the Pakistan administration had employed the country's resources for peaceful aims, for economic development and improving the people's life. Militarization is a heavy burden for the working people, whose living conditions are deteriorating fast. Pakistan's military expenditures, the U.S. NEWS & WORLD REPORT points out, take up to 60 percent of the country's budget, and as a result, the country, as the "ASIAN NEWS AGENCY" observes, is living in debt. Pakistan covers 80 percent of its expenditures with moneys [words indistinct] foreign loans. It is not difficult at all to foresee the perilous consequences of Pakistan's (?program of) nuclear weapons, consequences dangerous for the people of Pakistan and for the world peace.

PAKISTAN

BRIEFS

TRANSFER OF NUCLEAR TECHNOLOGY--At the International Conference on Nuclear Energy in Vienna, Pakistan has again put forward its proposal for resumption of talks between countries having nuclear equipment and technology and recipient states so that a just and equitable formula is evolved for the transfer and sale of nuclear materials. Pakistan Nuclear Energy Commission Chairman Munir Ahmad Khan reiterated that Pakistan's nuclear program is solely for peaceful purposes and it adheres strictly to the nonproliferation of nuclear weapons. [Text] (BK280936 Karachi Domestic Service in Urdu 0200 GMT 28 Sep 80)

CSO: 5100

SOUTH KOREA

BRIEFS

EARLY NUCLEAR PLANT COMPLETION--Seoul, 20 Oct (HAPTONG)--The state-run Korea Electric Company (KECO) plans to dedicate the six nuclear power plants now under construction earlier than scheduled, KECO officials said today. The six nuclear power plants now under construction are the second nuclear power unit at Kori, near Pusan, the Wolsong nuclear power unit, and the nation's fifth, sixth and seventh and eighth nuclear power units, with their aggregated rated generating capacity reaching 4,028,700 kilowatts, the officials said. According to the plan, the Kori second nuclear power unit will be dedicated by the end of 1982, about one year ahead of the original schedule, the officials said. The Wolsong nuclear power unit will be completed by October of 1982, some six months earlier than originally planned, they said. The plan also calls for the early dedication of the four other nuclear power units to complete them all by March of 1986 at the latest, one year ahead of the original schedule, they added. [Text] [Seoul HAPTONG in English 0236 GMT 20 Oct 80 SK]

CSO: 5100

ARGENTINA

BRIEFS

URANIUM REFINING PLANT--Cordoba, 14 Oct (NA)--A uranium refining plant, which is being built here and which will allow Argentina to have full control over the primary cycle for producing nuclear fuel, will become operational at the end of 1981 with an initial production of 150 tons per year. Rafael Coppa, chief of the Cordoba plant of the National Atomic Energy Commission, told the media that the uranium refining process used by Argentina is currently used in Great Britain and the FRG. Coppa said that the uranium refining plant, which is being built on the outskirts of this city, will be finished by the end of next year and will yield an initial annual production of 150 tons. This will "allow Argentina to get rid of its dependency abroad" in this field. Coppa also pointed out that by making this plant operational, Argentina will take full control of the primary cycle of nuclear fuel production. That is, the entire process of preparing radioactive material will be completed in the country. The primary production cycle of nuclear fuel comprises: prospecting, extraction, production and refinement or purification of radioactive material until it is placed in the reactor, designing and construction of the tubes or containers for it. [Excerpt] [PY162147 Buenos Aires NOTICIAS ARGENTINAS in Spanish 2315 GMT 14 Oct 80]

CSO: 5100

ANGRA-I TO UNDERGO FINAL TESTS IN OCTOBER

Rio de Janeiro O GLOBO in Portuguese 6 Sep 80 p 17

[Text] The chief of the Furnas group that will initiate the operation of the first Brazilian nuclear plant (Angra-I), Sergio Guimaraes, said yesterday that the plant will be in commercial operation in May of next year. It will begin operations almost 3 years behind schedule and, according to the Furnas representative, that is due mainly to the decision to build Angra-II and III at the same site as the first unit. The cost per installed kilowatt will be \$2,000.

"That decision implied the preparation of new plans for various areas, changing the dimensions of the project bed, of the tunnel for the circulation of sea water that will be used to cool the plants, and other details," he said.

The most important phase of the work of commissioning the plant (final tests for quality and operational capability of the various plant components), which has been conducted since last year, will begin in October when the "hot" tests will be conducted.

Those tests mean putting the plant into regular operation, as will occur once it goes into the commercial mode, except without having the enriched uranium in its reactor. All the heat, pressure, steam and condensation systems will go into operation. That will be made possible through the use of electrical energy, which will take the place of nuclear fission to generate heat.

Care

Engineer Sergio Guimaraes said that the most delicate phase is the one when the antiaccident protection systems are tested.

It is necessary to be absolutely certain that when one of those systems is activated, it will really work. Even after the plant goes into commercial operation, that part will be tested daily.

Once the "hot" tests have been completed--which takes an average of 2 months, although if some problem arises that period can be extended--the reactor vessel is reopened, the special filters installed for the tests without the uranium bars inside it are removed, and it receives the fuel charge.

The chief of the group that will initiate operation of the plant said that the fact that it will go into commercial operation next May does not mean that it will be contributing its 626 MW to the Furnas electric system.

"The load potential of the plant is being activated progressively. One does not initiate the operation of a nuclear plant and it then begins to operate at full load; besides the National Nuclear Energy Commission (CNEN) requires the supplying of test data for each acceleration of the plant and Westinghouse makes analyses on the basis of the reaction of the equipment.

Qualification

"We bought a plant with a black box but we succeeded in opening it in the course of its construction" he said.

Sergio Guimaraes said that although it was not included in the purchase contract between Furnas and Westinghouse, the former succeeded in convincing the American company that the Brazilian engineers should be trained not only to operate a nuclear plant but also to understand its operation on the technical level.

He said that 29 Furnas engineers were trained in the United States and they are qualified not only to manage the operational system but also to resolve problems that may arise with the plant. That competence has made it possible to have 40 Brazilian engineers today participating together with 40 American colleagues in the work of commissioning Angra-I.

"It was established, however, that responsibility for the project belongs to Westinghouse and in case of any differences, their opinion will prevail, because in any other circumstances it would withdraw the terms of guarantee for the quality of the product."

Once completed, Angra-I will have 300 people divided into several shifts working in its operation.

The commissioning work means checking no less than 6,000 components of the plant, including 746 electric motors of different sizes.

Once that first battle has been concluded, which Furnas expects to be victorious, another no less difficult one will proceed: the construction of Angra-II, which has not yet gone beyond the foundations and today is

more than 2 years behind schedule, and Angra-III, the site of which has not even been decided upon. In that case, the technicians will have to learn a new language because that phase will be carried out with the Germans of the KWU company responsible for the next eight nuclear plants to be built in Brazil.

With regard to Angra-II, the work of reinforcing the piles that make up the foundation of the reactor building is proceeding according to schedule. Twenty-five units have already been reinforced; 62 piles still remain to be serviced. That stage should be completed by the end of the year.

8711
CSO: 5100

BRAZIL

NUCLEBRAS PLANNER PREDICTS 30-40 NUCLEAR PLANTS IN 30 YEARS

Sao Paulo O ESTADO DE SAO PAULO in Portuguese 13 Aug 80 p 23

[Text] Porto Alegre--Brazil will have from 30 to 40 nuclear plants operating by the end of the next 30 years and will be in a position to produce heavy equipment for 12 or 14 other plants annually. That information was supplied by the superintendent general of planning of the Brazilian Nuclear Corporation (NUCLEBRAS), Sebastiao Carlos Valadao. He spoke yesterday at the weekly luncheon meeting of the Federation of Industries of the State of Rio Grande do Sul (FIERGS) in Porto Alegre.

Valadao announced that the government's objective is seeing that 25 percent of the value of each plant built in the country represents equipment manufactured by national private industry, but he did not predict when that goal would be attained. He said only that private industry will get into the sector "gradually."

Asked why the private sector was not called upon to participate in the nuclear program from the beginning (the question was asked by the vice president of FIERGS, Luis Otavio Vieira), Valadao replied that the Brazilian industrialists were consulted but refused to participate because they had purchased a large amount of equipment abroad and were not prepared to make additional investments.

He also denied that the NUCLEBRAS Heavy Nuclear Equipment Corporation (NUCLEP) was oversized or had idle capacity. According to him, NUCLEP has the minimum equipment necessary to begin producing heavy components for nuclear use. With regard to the relatively short period of use of that equipment, he said that that does not represent idle capacity but is a natural consequence of the maturing phase of the nuclear program. Beginning with the sixth plant, NUCLEP will have all of its capacity in operation. Before the talk, however, Sebastiao Carlos Valadao said that there has not been any decision yet about the sites of the sixth plant and the other two envisaged in the Brazilian-German agreement.

8711
CSO: 5100

BRAZIL

CNEN CHIEF DISCUSSES FRG ACCORD, AIMS OF PROGRAM

Sao Paulo FOLHA DE SAO PAULO in Portuguese 28 Aug 80 p 7

[Text] The director of technology and development of the Basic Sanitation Technology Company (CETESB), Carlos Celso do Amaral, revealed in Sao Paulo yesterday that the possibility of an agreement between CETESB and the federal government is being studied whereby the Sao Paulo company would give "technological support" to the implementation of the Brazilian nuclear program. The statement was made during the visit to CETESB yesterday by the chairman of the National Nuclear Energy Commission (CNEN), Hervasio de Carvalho, "to familiarize himself with the programs of the establishment," as he declared in a press interview.

In the meantime, the president of the Sao Paulo Power Company (CESP), Francisco Lima Souza Dias, who was present during the visit, said that his company is not yet a concessionaire or participant in the nuclear program but that it is only awaiting the decision of the federal government to participate in it. The company "will invest in it in the same proportion as it does in the hydroelectric area, with possible differences to be covered by the federal government out of contingency funds."

Nuclear Program

In the long interview he granted the press immediately after the visit, Hervasio de Carvalho said that the Brazilian nuclear program perhaps needs another 20 years to be established and that perhaps it will not proceed at the desired pace. But he asserted that the nuclear agreement signed with Germany will proceed "because it is the number-one priority, a government decision." The CNEN chairman warned, meanwhile, that if Brazil does not work urgently to establish the program, we are going to accumulate problems that will be insurmountable within 20 years."

Hervasio de Carvalho, however, considered that "there is a psychosis, a sort of national destructive pathogenesis about the agreement, a reaction that one cannot understand," describing the idea that nuclear energy is dangerous as "fantasy."

The CNEN chairman argued that "ecologically, of 11 sources of energy, the nuclear source is second in terms of the least ecological impact,

surpassed only by the plants that burn natural gas." He cited as an example the accident that occurred in the U.S. Three-Mile Island plant.

"The Three-Mile Island incident can be examined objectively, observing that no one was injured, no one was killed and, nevertheless, it was the biggest accident ever to occur in a nuclear plant." According to the CNEN chairman, the fact that the president of the United States and his wife visited the plant 3 days after the accident is proof that there was no danger. "If in fact it had been a dangerous thing, no security service would have permitted the President of the United States and his wife to visit the plant where the accident occurred."

According to Hervasio de Carvalho, "The real scientists know perfectly well what are the consequences of a nuclear accident. If a person is a scientist, he is competent. And if he is competent, he knows what he is talking about. So he knows perfectly well that there is no impact on the environment."

The CNEN chairman said also that Brazil does not intend to build the atomic bomb but if "it were forced to undertake a military program in its legitimate defense, it would be absolutely sovereign to make that decision.

"Nobody goes into a military program except by a very serious political decision," he added, "and nobody would pursue that course because there are seven or eight more economical ways of making nuclear explosives than using a nuclear plant, the cost of which is enormous, and it would not make any sense either economically or technologically."

At the end of the interview, the director of technology and development of CETESB, Carlos Celso do Amaral, announced that the Sao Paulo company is going to sign an agreement with the CNEN by which the Sao Paulo company will follow the implementation of the nuclear program, declaring that CETESB can offer "objective, clear and technical information to the nuclear program in the environmental aspect. We would be an auxiliary to the development of that environmental program."

8711
CSO: 5100

BRAZIL

NUCLEN URGES CONSTRUCTION OF EIGHT REACTORS

Sao Paulo FALHO DE SAO PAULO in Portuguese 28 Aug 80 p 7

[Text] Brasilia--The superintendent of the NUCLEBRAS Engineering Corporation (NUCLEN), Ronaldo da Cruz Fabricio, warned yesterday in testimony before the National Security Committee of the Chamber of Deputies that Brazil could lose all the nuclear technology it has succeeded in transferring from Germany if it limits the technological process to the purchase of the fourth plant.

According to him, although all the technology will have been transferred by the fourth plant, it will have lost all of that effort in terms of the future because the cycle that permits the development of interrupted. With that limitation, he said, we will reach the year 2000 with that technology lost midway.

Ronaldo Fabricio also emphasized that construction of the complex of eight reactors is also necessary to give Brazilian industry a large-scale configuration by guaranteeing a market for the equipment it manufactures. With only four units, he concluded, the participation of national industry will be limited to 30 percent.

The NUCLEN superintendent also stressed the effort made by the government to expand the capacity of the Brazilian industrial park by signing the market guarantee protocol for the four Brazilian heavy machinery companies that agreed to produce for the nuclear program.

At the same time, the director of the Brazilian Nuclear Corporation (NUCLEBRAS), John Milne Albuquerque Forman, stressed that the cost of the generation of nuclear energy in Brazil is appreciably higher than the world cost because of the costs of apprenticeship and support given to the national industry.

Forman then added that the fourth plant will have an appreciably lower cost than Angra-II.

8711
CSO: 5100

BRAZIL

FIRMS HAVE NOT RECEIVED NUCLEAR EQUIPMENT ORDERS

Rio de Janeiro JORNAL DO BRASIL in Portuguese 9 Sep 80 p 18

[Text] San Paulo--The Brazilian industries that will provide equipment to the nuclear program with Germany have not yet received any decision or new orders to insure continuity of production and none of them has included possible sales of nuclear equipment in their 1980 budgets.

The manufacture of the containment vessel for Angra-II has not yet been begun despite the fact that Confab Industrial has the raw material, an imported alloy of special steels. The vanadium steel alloy purchased in Germany is stored by the company, which has not yet received orders from the Brazilian Nuclear Corporation (NUCLEBRAS) to produce the containment vessel and Confab has no idea when it will begin to manufacture its equipment.

Cobrasma, which is a member of the Confab-Cobrasma-Bardella consortium that signed a protocol with the government for the manufacture of complementary parts of Angra-II, made a new survey of the costs of production of heat exchangers and turned it over to NUCLEBRAS at the end of August. But its management cannot tell when a contract will be signed in order to begin producing equipment.

An estimate made by the capital goods industrialists whose companies are committed to producing equipment for the nuclear program showed that if an order is placed today, it cannot be delivered until the end of 1981, and more probably in 1982.

The protocol between the NUCLEBRAS Engineering Corporation (NUCLEN) was signed in 1976 and up to this time only Confab Industrial has received the order for the containment vessel the production of which has not yet been begun.

8711
CSO: 5100

BRAZIL

GOLDEMBERG CITES RISKS OF SAO PAULO COAST NUCLEAR PLANTS

Sao Paulo O ESTADO DE SAO PAULO in Portuguese 12 Sep 80 p 24

[Text] The installation of nuclear plants in the state of Sao Paulo, in the area of Peruibe and Iguape, will increase the risks to the life of the neighboring population, which does not have the necessary infrastructure to be evacuated in the case of accidents, especially if that happens during the weekend when about 1 million people go to the beaches there.

That observation was made in Brasilia yesterday by Professor Jose Goldemberg of the University of Sao Paulo in testimony to the subcommittee that is analyzing conditions for the installation of nuclear plants in Sao Paulo. He considered also that the establishment of those plants would "bring dubious benefits to that population because the electricity generated will be transmitted to Greater Sao Paulo or other areas of the country."

Goldemberg stressed the insignificance of the Peruibe and Iguape plant which, according to the scientist, would generate 2.5 million kilowatts, "which could come from another source at lower cost." Assessing the timeliness of the project, he also questioned the arguments of those who defend the energy option from the viewpoint of national security.

According to Goldemberg, "The supply of fuel for future nuclear reactors is not yet assured." In that connection, he recommended that the National Security Committee of the Chamber of Deputies get "independent opinions in that regard."

Pointing out that the measurement of the risk of accidents is statistical, Goldemberg cited data of the U.S. Atomic Energy Commission, according to which there is a 1 percent possibility of accidents per year in nuclear plants which, in the opinion of the physicist, "is a very high probability."

The scientist also pointed out that in the case of accidents through radioactive pollution there is no experience for coping with them. "The

delayed effects of radioactive pollution, such as cases of leukemia and cancer that are occurring even today in Hiroshima and Nagasaki, or genetic problems, aggravate the consequences of that type of pollution."

Added to those risks, Goldemberg also warned against the "wave of terrorist actions throughout the world, which could strike at the nuclear reactors."

The scientist pointed out that the Brazilian Physics Society recommends observing a distance of at least 50 kilometers from population centers with more than 25,000 inhabitants and in areas where the total population within a radius of 40 kilometers is greater than 25,000 inhabitants.

Linus Pauling

Professor Linus Pauling, Nobel prize winner for chemistry in 1954 and for peace in 1962, said in Rio yesterday that he was "opposed to the construction of atomic plants for many reasons. One of them is the high price of energy produced because after they are installed it increases as if there were a hidden cost on those plants. But even knowing those problems construction continues as if it were a fad."

According to Professor Linus Pauling, the people of the United States have become aware of that problem for some time and through various pressure methods they have succeeded in drastically reducing plans for building such plants.

8711
CSO: 5100

MOSCOW UNIVERSITY GRADUATES POWER ENGINEER

Caracas RESUMEN in Spanish 14 Sep 80 pp 21-24

[Article by Abilia Moreno: "Our First Thermoenergy and Power Engineer"]

[Text] On 1 August, Jose Mendez, 25 years of age and from Maracaibo, excitedly walked down the steps of the airplane which left him on the international runway in Maiquetia. In suspense, Jose walked through the corridors of customs, inwardly wishing for a grand reception; but, except for the necessary presence of his closest relatives and friends, no one else seemed to be waiting for him there. The fellows from the press, always chasing news, did not even "sniff" the presence of the first Venezuelan to graduate as a "thermoenergy and power engineer" from the prestigious Lomonosov State University in Moscow, nor that the attache case that the young man was holding tightly contained, in addition to the certificate accrediting him as a specialist in the field, a master of science degree in engineering the thesis for which, entitled "Comparison of the technical-economic parameters between a nuclear plant and a gas fuel-oil plant," won him a summa cum laude with outstanding grades and the Order of Lenin.

In a rapid succession of images, Jose recalled his admission in 1974 to the State University, where he arrived with a grant from the University of Carabobo, as a result of the CORDIPLAN [Office of Coordination and Planning]-USSR bilateral agreement, with an average of 18.5 points. Later, there was his entry in 1976 into the Moscow Energy Institute; and, finally, his graduation in 1980 from the Polytechnic Institute of Byelorussia, where they confirmed his scientific or master's degree in engineering sciences.

Withstanding 6 years of ironclad academic discipline, with the obstacle of not being able to master the complicated language skillfully at first, suffering the inclement frosts typical of Moscow, and sacrificing appetite and other desires to make the meager grant last until the next payment arrived are not easy endeavors to undergo, especially when they are compounded by the reluctance of the suspicious countries of the Eastern bloc to award degrees in special fields to foreigners who are not affiliated with their political system. In the competition held at the University of Carabobo (in 1974) only 15 students were selected; and of the small number accompanying Jose Mendez to Moscow, at the end only four remained. The abundance of

these critical factors had to be offset in some way. So, the persistent desire holder gave free rein to his wish to lead a life wherein literature and poetry went hand in hand, at least in a limited extent, with personages from the literary team: Pushkin, Lermontov and Taganov, the great lyric poet of the USSR. Thus, while his 11 withdrawing fellow countrymen turned their backs on the homogenization, cold food without vitamins, difficult language and social system of discipline and order, our Maracaibean decided to persevere, despite the sharp change represented by a way of life in which everyone does what another wants, in which everything is planned in a standard fashion as with the characters of the students from over 100 countries attending the university of Moscow.

Apart from the positive positions that he held with regard to his country's superstructure, there is evidence that, rather than maintaining international tension, these agreements are evidence of the cooperation and mutual understanding among peoples.

Differing his concern toward alternate ends, Jose became head of the Bolivarian Society in Eastern Europe, with headquarters at the Venezuelan Embassy in Moscow. ("There, I engaged in cultural activities and achieved a closer friendship with our own ambassador in Russia, Regulo Burelli Rivas, which afforded me an opportunity to meet diplomats of the Soviet bloc, such as Akhmatov, and painters and literati.")

Once, when the Venezuelan went to visit East Germany, upon his return to Moscow the authorities would not allow him to enter. They had given him an exit visa, but not one to return. The reason? Mendoza's activities within the Bolivarian Society and his constant visits to the embassy were judged by the Soviets as "subversive." To justify the seizure, the Russians had already sent a telegram to the Venezuelan Government's representative informing him that the student Jose Mendoza could not continue to use the grant because of poor academic achievement. ("Fortunately, I had some time ago given to Ambassador Burelli a copy of my grades, which were never under 5 points, the equivalent of 10, nor maximum number of points. Burelli sent a forceful protest to the Soviet Ministry of Education, attaching a photocopy of my grades clearly attesting to the fact that I was an outstanding student and my grades were within the parameters required by the university. Desperate, I decided to enter through the Polish border, without having been notified that the Soviet Embassy in Poland, forced by convincing evidence held by the Ministry of Education, had granted me the return visa.")

As Mendoza claims, it was the Russians' intention to expel him for academic failure, on the basis of his extra-educational endeavors: the organization of lectures, and requests for financial aid from other institutions, because 190 rubles (540 bolivares) is not any great assistance.

("A Venezuelan student 12,000 kilometers from his country needs books, medicine and clothing, and we required all that. They thought that I was a

foreign agent, because I met with diplomats, attended receptions at the American Embassy in Moscow and coordinated students' problems, locating the petitioners in their respective institutes. I do not attach too much importance to all these vicissitudes, because that does not occur in the case of normal students. The fact was that I dared to implement my convictions and I produced a work on the Latin American classics for which Aram Khachaturian, a wonderful composer in the USSR, who died recently, gave me a prize.")

Caracas Electricity and CADAFE: 'Lend an Ear'

Jose Mendez, the young Maracaliban engineer, is without doubt an exceptionally brilliant thermoenergy and power engineer. The outstanding grades (5.5) and degrees, groups of which he distributed on the small table as evidence of his story, are backed by the authorities in the field from the Soviet Union, and deserve to be taken into account. The subject of the interview notes that the thesis for his degree included comparisons of the technical-economic parameters in the nuclear thermoelectric centers and the gas fuel-oil power plants, and that in order to prepare it he had to investigate two projects.

A project on the fuel oil thermal stations (they are the same as those maintained by Caracas Electricity and CADAFE [Electrical Administration and Development Corporation] in Venezuela);

Another on the modern thermoelectric powerplants that do not exist in our country.

The main point which Mendez develops in his thesis is that, for the first time, calculations are made of the nuclear thermal stations for tropical conditions, with turbines which simultaneously generate electric power and meet the demand for steam. It is the young engineer who says: "For the first time, the rational use of the fuel (electricity) generated by the thermal stations existing in Venezuela is proposed in a tropical country. I was able to determine that, with the same amount of fuel and at the same cost of exploitation, not only electric power, but steam as well, can be generated. This would represent a savings in fuel and in the general economy of the plant's exploitation; and an example of what I am saying is the fact that, in Europe, these turbines are used to generate electricity and heat."

He summarizes: "Under the conditions in Venezuela, I cite the possibility of avoiding waste, using the same amount of fuel and at the same time generating the electric power (steam) to meet the industrial demand: steam for air conditioning generators in a project that I have done ('absorption air conditioning') for the plastic industry."

Another very important aspect, as the engineer who received his degree in Moscow points out, would be to obtain drinking water from the sea, a project that has been carried out in the Caspian Sea, in the southern USSR. ("Specifically, steam is sent to a rectification column where the salt is salinized;

and the desalinated water is taken to special filters in which it assumes the features of drinking water"). To be sure, such development would have to be preceded by an economic study, Mendez observes, because it appears less expensive to carry it from the plain area, for example, than to have a project of this kind. Commenting on the availability of infrastructure for energy sources in Venezuela, Mendez asserts the conviction that, if the hydroelectric resources are to meet the demand until the year 2000, "according to the studies that have been made, the plants will have a ratio of 60-40. I propose the rational utilization of that specific 40 percent remaining. I think that the country's energy strategy should be coordinated, and the need to anticipate the use of nuclear power should not be overlooked."

Nuclear Power for Venezuela

In making this point, Mendez cites the importance of conducting more accelerated studies in the area of potential opportunities for using nuclear power in Venezuela ("it is not a matter of generating power for the sake of generating it"), so that, in 5 years, we may have our own professional personnel. According to Mendez, the hydroelectric resources with a lower cost per kilowatt generated have not as yet been utilized.

With the coal reserves that exist in the West, and the geothermal resources that the country is claimed to possess, it would be possible, with a consistent strategy in the area of energy planning, to create a nuclear plant, profitably and conveniently, with a small amount of power at first. "But the country's energy plans do not call for the use of nuclear energy before the year 2000, because there is the notion that we have sufficient resources. However, the nature of the technological process of exploiting nuclear plants requires an acceleration of the plans to put one into operation before that year.

"At a time when we find nuclear plants to be profitable and concurrent, there are scientific and research agencies interested in this project of mine, not only here but in Berlin, where they offered me a splendid opportunity to develop it. But I want to work in my country, where I consider the use of nuclear power necessary.

"If I underscore this it is because there are two essentials, which I can indicate as follows:

"A thermal neutron nuclear plant, and a rapid neutron nuclear plant.

"The first phase calls for the use of uranium 235 isotopes which, in nature, allow for a self-supported nuclear reaction. Unfortunately, this isotope is

found in uranium in small amounts of 0.71 percent. The remaining 99.3 percent is uranium 238, which can only be used when the transition from the first to the second phase of rapid neutrons takes place.

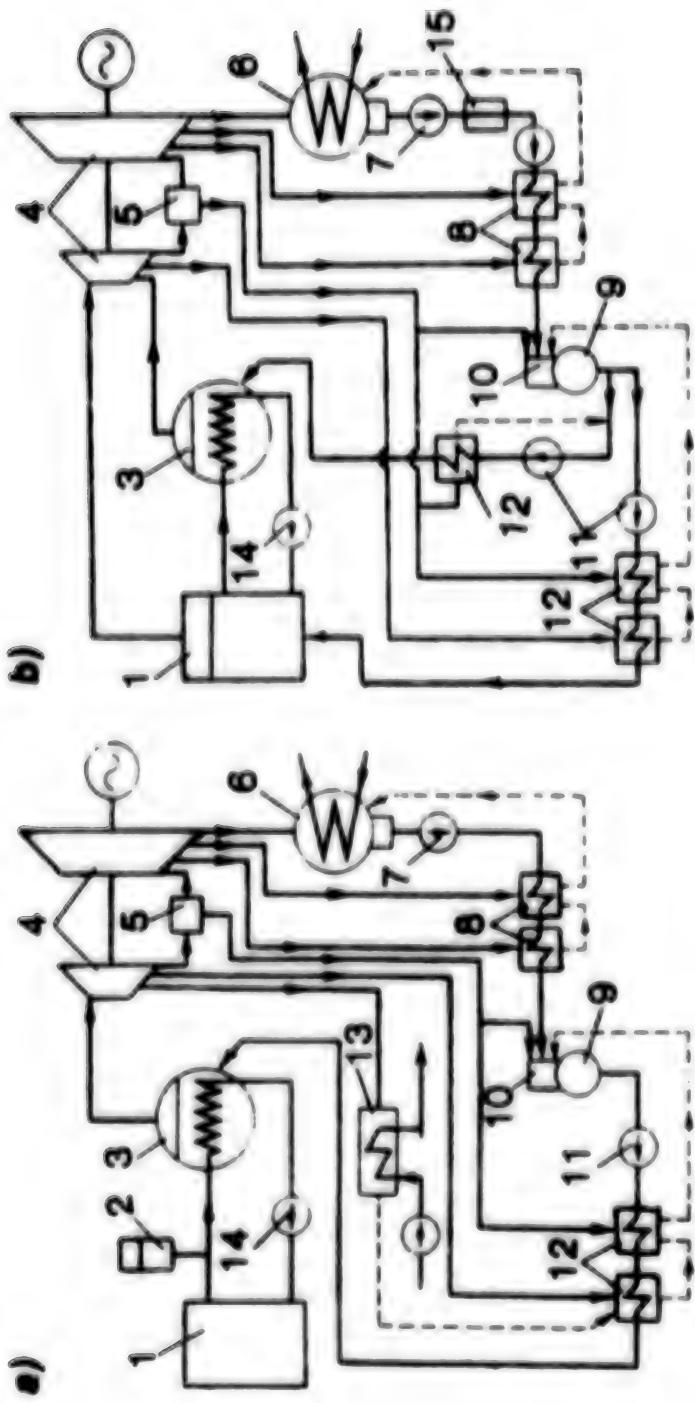
"Uranium is the only fuel which, after being exploited, affords us the opportunity to use its residue as fuel. First, because it uses the residue from the thermal plants, and then because it will be essential for the development of the rapid neutron plants. Thus, we could say that what is being done is generating power and regenerating fuel; and this is possible only if we begin to exploit the uranium with thermal plants which allow for:

"The creation of professional cadres which we cannot produce out of the blue;

"The importance of developing a totally new strategy, making more rational use of the resources that we have. If this had been done, we in Caracas would not be notwithstanding the pressure from the electric plants with their increased rates; because it is high treason to the country to burn fuel as we have been in the conventional thermal plants, since we can diversify those products and increase the profits exponentially."



Dr Jose Mendez



This is the simplified thermal design of a nuclear thermoelectric powerplant using water as a thermal conductor. a) In two cycles. 1. Reactor. 2. Volume compensator. 3. Steam generator. 4. Steam turbine. 5. Separator of the turbine. 6. Condenser. 7. Condensing pump. 8. Low pressure heater. 9. Deaerator. 10. Deaerator column. b) In one cycle. 11. Feed pump. 12. High pressure heater. 13. Thermal inter-changer. 14. Circulation pump. 15. Condensate purifier.

SAFETY OF IRAQI NUCLEAR REACTOR QUESTIONED

LD200945 Paris LE MONDE in French 11 Oct 80 p 38

[Unattributed report: "Is the French Enriched Uranium Supplied to Iraq Still Guarded by the French?"]

[Text] LIBERATION writes this Friday, 10 October, that 12 kg of enriched uranium supplied to Iraq by France has been "abandoned by French technicians to the Iraqis' discretion."

The supply of highly enriched uranium for the small Isis reactor ("critical model"), which has a power of 800 kilowatts, and the Osirak research reactor built by France for Iraq has never been officially confirmed.

Questioned on this subject by a senator, Mr Francois-Poncet merely replied that the many research reactors functioning in the world are fed by highly enriched uranium (especially American uranium); that Iraq, which has signed the Nonproliferation Treaty (unlike Israel), accepts monitoring by the Vienna International Atomic Energy Agency and that "all the necessary precautions" have been taken by France (notably by the presence of French technicians at the Iraqi nuclear center) to ensure that the French uranium is only used for the reactors and could not be removed to build a nuclear bomb.

According to unofficial but reliable information Isis functioned for 30 minutes at full power, which implies that a charge of 12 to 13 kgs (apparently in the form of metallic enriched uranium) was indeed supplied to Iraq.

The question is how this charge has been guarded since the air attack on the Iraqi nuclear center at (Tammuz) near Baghdad on 30 September by aircraft which have not been accurately identified. After the attack the AEC [French Atomic Energy Commission] indicated that volunteer French technicians had stayed to keep watch on the plant. On Thursday, 9 October, the Quai d'Orsay specified that of almost 5,000 French citizens working in Iraq before the conflict 878 were still there on 8 October, 631 of them in the Baghdad region.

Liberation also published the facsimile of internal correspondence carried out by Technicatome, a subsidiary of the AEC, working with Iraq, indicating that a document entitled "Israeli Boycott" was to be regarded as "contractual" with Iraq. This document does not seem to relate to a ban on French Jewish technicians but a pledge by Technicatome not to work with Israel or the Israelis.

However, there can be no doubt that many agreements reached between French enterprises and Arab countries contain provisions ostracizing French Jews, in violation of the antiracist law of 1 July 1972. Moreover Iraq is apparently not the most intolerant Arab country in this respect.

Saudi Arabia is apparently much more intolerant. A prime minister's directive of July 1977 aimed at moderating the effects of this law in "France's economic interest" was canceled by the Council of State on 18 April 1980. It was resumed in a different form by a directive dated 9 May which is at present being examined by the Council of State.

SOUTH AFRICA

UCOR DOCUMENT PARTLY REVEALS ENRICHMENT PROCESS

'Spindryer' Process

Johannesburg THE STAR in English 29 Sep 80 p 1

[Article by Jaap Boekkooi]

[Text] South Africa will within five years produce 50 tons of enriched uranium a year through a unique space-age battery of gigantic "spindryers" similar in principle to those in home washing machines.

The ultra-secret enrichment process--once claimed to be the cheapest in the world--has been partly revealed for the first time in a public document published by the Uranium Enrichment Corporation at Valinbada, near Hartbeespoort Dam.

The process is not radically new. It is a variation of the centrifuge system experimented with in several European countries over many years.

From the first details provided by Ucor it appears, according to one leading nuclear scientist, Professor Friedel Sellschop of Wits University, that the spindrying method of uranium enrichment could be used in principle to manufacture materials for a nuclear bomb--"but very slowly and at enormous cost in money, time and manpower."

The 50 tons of enriched uranium coming out of the Valinbada spindryer batteries by the middle '80s are destined to travel to Cape Town as fuel for the Koeberg nuclear power station, due to start operating on January 1, 1983.

Ucor's entire design capacity will barely be enough to keep the R2 000-million Koeberg project going. An Escom spokesman confirmed today that Koeberg's consumption would be 48 tons of enriched uranium a year, about two big lorry loads.

South Africa is unlikely to get uranium from its contracted supplier, the United States, as long as it refuses to sign the international Nuclear Non-Proliferation Treaty which requires this country to pledge not to

make nuclear arms, and open its nuclear operations to international inspection.

Amid rumours of an organised spy campaign to crack the Ucor enrichment process, including spy pictures taken from the American Ambassador's private plane over Valindaba, the country's nuclear authorities have opted for strict secrecy.

Although Ucor has admitted the spindyer method of enrichment, and given a simple description of how the uranium carried in hydrogen gas spins round to separate the 'hot' molecules of Uranium 235, it has gone to extraordinary lengths to stop anybody guessing what goes on at Valindaba.

The new Ucor publication says to preserve top secrecy Ucor itself developed the tooling machines which were in turn used by Ucor to manufacture the elements which went into the huge spindyer machines.

Further Details

Johannesburg THE STAR in English 29 Sep 80 page not given

[Article by Jaap Boekkooi]

[Text]

The first published results of local uranium enrichment — once hailed as South Africa's most spectacular postwar scientific achievement — are hardly spectacular.

The Uranium Enrichment Corporation's pilot plant at Valindaba started 10 years ago to exploit the enrichment discovery made 14 years ago.

It will have to work another five years before turning out enough nuclear fuel to fill one railway truck a year.

And the corporation's entire effort, plus that giant futuristic multi-chimneyed factory in the Bush belt, will go to feed one relatively small nuclear power station, Koeberg, near Cape Town.

It is unlikely that Ucor will be able to produce enough enriched uranium for other nuclear installations, such as the Safar 1 reactor, which cannot get essential fuel from America.

So Ucor, into which the Government has sunk huge amounts of money, is somewhat like Sasol 1 which, worked at a loss, but showed eventual promise.

Since there has been no word on Ucor's financial viability for years, some nuclear experts openly speculate that the 50 tons of enriched uranium to be produced could be the country's most expensive fuel.

This concerns Escom, which will run the Koeberg station, for if Koeberg's fuel is costlier than enriched uranium from America (which South Africa, for political reasons, is unlikely to get) Escom will run Koeberg at a loss — and electricity rates will again go up.

The Ucor process, from its first discovery by Dr W L Grant to pilot production by 1985 almost two decades in the making, has the potential to become a major income

turner, says a new Ucor booklet.

Reason is that last year South Africa earned about R500-million from uranium exports. By improving the product, or enriching it, this figure could be enhanced.

Though top secret, Ucor's publication describes the basics of its enrichment process.

To turn ordinary uranium into nuclear fuel the percentage of the "hot" uranium 235 molecules must be increased from 0.7 percent to 3.25 percent.

The uranium, combined with hydrogen gas, is given a spindrier treatment.

This drives the lighter U235 molecules out. By repeating the treatment in large batteries of spindriers and compressors to drive the gas around them, the percentage of U235 molecules rises.

'Translating other details of the published Ucor process, Professor A M Meyer, professor of nuclear physics at Portchef-stroom University, said: "The compressors in the process are basically pumps which drive the gas round the centrifuge. Heat exchangers, basically coolers like car radiators, are necessary to remove the heat from gas compression as you find in a bicycle pump."

"The process takes place in cascades, repeated, like the action of a tandem bicycle or cascading water. Ucor claims a new helicon cascading technique but this, and other details of the process have me in the dark."

Professor Friedel Selschop, nuclear scientist at Wits University, says his guess is that there are a number of technical and scientific secrets and innovations in the process.

CSO: 5100

ELECTRIC POWER FIRMS STUDY NUCLEAR WASTE STORAGE

Copenhagen BERLINGSKE TIDENDE in Danish 28 Sep 80 p 2

[Article by Peter Kjelstrup]

[Text] Within the next few months, the electric power firms expect to have completed all their practical investigations with regard to storage of highly radioactive waste in Denmark. Just completed radar tests on the salt dome in Mors have been sent to Germany for further examination, and, at the moment, the groundwater currents above the salt dome that would be used for nuclear waste storage, are being tested.

Elsam, the electric power cooperation organization for Jutland and Funen, has stated that the last few practical tests are expected to be completed in time for all the pertinent figures to be ready around the turn of the year. The test results from the drillings as well as, among other things, the subsequent radar measurements have now been sent to places throughout most of the world for evaluation. When these evaluation results come back, the electric power firms will be starting writing their final reports, and this is expected to take another couple of months.

The nuclear waste storage report of the electric power firms had been scheduled for completion this very fall, but unsuccessful drillings at Linde near Viborg, where the salt dome proved to be different from the results of the seismic measurements, coupled with the prime minister's postponement of the entire nuclear power project in January, caused the delay of the report of the electric power firms.

In April and July, however, two successful drillings were carried out at Erslev in Mors, and these two drill holes will now be used for the further tests, which, among other things by means of echo-sounding apparatus, will show whether the salt deposits under the surface of the earth are completely tight.

The test drillings at Mors are of 3,400 and 3,500 meters, respectively. The total costs of the preceding seismic tests, the unsuccessful drillings and the subsequent measurements of the salt dome in Mors have been estimated at 56 million kroner. An amount which, despite the supplementary grant of 9 million kroner in June, today is deemed to be somewhat on the low side of the actual costs.

7262
CSO: 5100

FEDERAL REPUBLIC OF GERMANY

SCIENTIST DISCUSSES THORIUM REACTOR RESEARCH

Bonn DIE WELT in German 5 Sep 80 supplement WELT REPORT pp 21-23

[Interview with Prof Rudolf Schulten by Klaus Mueller: "The Little Hot One From Juelich"]

[Text] The possibility of using thorium to produce nuclear energy is being discussed because of its plentiful supply. The first high-temperature thorium-uranium reactor will be built in Schmehausen, Westphalia. Concerning the future of the new nuclear technology, DIE WELT spoke with the father of the thorium-uranium reactor, Prof Rudolf Schulten, in Juelich.

WELT: What is the status of thorium technology, and is there an adequate supply of this fuel?

Schulten: As a basic material there is enough thorium to last for a very long time. Thorium is practically inexhaustible. In the first place, one must bear in mind that millions of tons of thorium ores already exist today. Secondly, thorium will, of course, be used as a breeder material which means that it will be used only in a very small quantity. Thus there is enough thorium and also enough cheap thorium. Several countries are interested in buying thorium as a raw material.

WELT: And what is the present status of the thorium-uranium reactor technology?

Schulten: On the one hand we have our reactor in Juelich which has been in operation for several years; it's running perfectly and exhibits very good characteristics. On the other hand, we hope to put the second reactor into operation in 1983 in the vicinity of Hamm.

The broad market potential of the high-temperature reactor has improved somewhat recently since it has become clear that nuclear energy will have to be used extensively also for heat production. Previously, nuclear energy was only of interest for producing electricity. The high-temperature reactor, especially the pebble-bed reactor, can make a very significant contribution to heat production and thereby serve as an oil substitute in our country.

WELT: In this regard are you now considering the liquefaction of coal or possibly also the production of hydrogen?

Schulten: We have altogether three or four fields of application for high-temperature reactors. The first and closest at hand is probably distributed heat for heating cities which already have a suitable distribution network. The second possibility is various energy types, that is to supply energy types at various temperature levels for coal refining, principally for coal gasification and liquefaction. This means that the energy potential of coal can be much more completely exploited.

Finally, the third big field, the one which personally intrigues me most, is the production of hydrogen with the aid of nuclear energy. We have been working for 10 years on this process, and twice along the way we thought that we had developed quite outstanding techniques. But, unfortunately, it turned out that although the methods are thermodynamically quite good, that is they work in the laboratory, nonetheless, the material problems associated with this process appear to us to be unsolvable in the end.

However, based on experience to date, I am convinced that it will now be possible to find enough simple processes. In fact, we have an idea for one. Surely in the course of the next 10 years somewhere in the world--and hopefully we will be involved--a process or several processes will be discovered which will have an initial efficiency of about 50 percent.

WELT: That is certainly very high for the utilization of primary energy.

Schulten: That, in relation to the production of electricity, is naturally relatively good; and secondly, it will be possible to realize such a process with respect to material technology within the foreseeable future. Just look at the present state of knowledge.

Combined electrical-chemical methods would, in my opinion, substantially solve the problem of energy technology, that is would offer not just an environmentally compatible but a perfect, environmentally engineered solution.

WELT: Is it probable that this contributes to the current interest of foreigners in the pebble-bed reactor, for example Brazil? Or is the Brazilian interest based on something else?

Schulten: Yes, in Brazil there currently exists an interest in making thorium an item of commerce during the next decade. The same holds for India, Turkey, China--all countries which have large thorium deposits. Their interest is...

WELT: One of the points of criticism of nuclear energy in general is that conventional reactors yield plutonium as a by-product, and plutonium can be used for the production of atomic bombs. What can be said about the uranium-thorium cycle in this regard?

Schulten: I believe that we will have practically no cause to worry about this question for the next 20 or 30 years because we presently--a fortunate circumstance in the midst of misfortune--cannot think of reprocessing. During the next 20 to 30

years we will have to store fuel elements of the high-temperature reactor directly without reprocessing, so that this question does not come up in relation to this fuel cycle.

Of course, nuclear engineering, when one considers longer time spans, must find ways of dealing with these materials which will not result in worldwide chaos. That can only come to pass through intensive international cooperation over a span of 20 to 30 years.

WELT: Thus, a political solution?

Schulten: A political solution must be found. In addition to plutonium other fissionable materials are, of course, suitable as weapon materials. Nonetheless, secret production of atomic weapons by industrialized nations, for example the FRG, is just not possible. These things become known very quickly.

WELT: Everything considered, thorium-uranium technology could solve a whole series of our problems. Professor, when in your opinion might the power-plant industry be at such a point that the thorium-uranium reactor--or let us call it, as is often done, the Schulten reactor--could actually be serially produced and commercially utilized?

Schulten: This question is easier to answer today than just 1 or 2 years ago. We see application possibilities for small units in this decade because of the price situation in energy raw materials.

WELT: On the topic of safety, just one question. The pebble-bed reactor, according to experts, has the advantage that it, for example upon failure of the cooling system, shuts down automatically. Because of this there is no peril from the heat nor the radioactivity. Is this correct?

Schulten: Yes, that is correct. I believe that we have in the pebble-bed reactor very great freedom due to passive safety. And the concept will become of still greater interest. We will take great pains to see that our associate in industry strongly adhere to this concept. I am convinced that we will not only have nuclear energy which offers a very high measure of safety but also which above all else--and this is especially appealing to me--one can understand.

9160

CSO: 5100

FUTURE OF NATION'S BREEDER REACTOR PROGRAM DISCUSSED

Paris LE NOUVEL ECONOMISTE in French 22 Sep 80 pp 70-73

[Article by Olivier Drouin and Jacqueline Giraud: "Who's Afraid of Breeder Reactors?"]

[Text] In inviting four deputies to conduct an investigation of breeder reactors in the United States, Great Britain and Japan, Europe 1 has reopened the debate on this technology in which France is engaged with the Super-Phenix. LE NOUVEL ECONOMISTE presents the report on the matter.

In deciding to make public the file on "breeder reactors" from 22 to 26 September, Europe 1 seemed to have chosen a somewhat austere, but largely dispassionate topic. Not the slightest hitch when, on 21 August in Creys-Malville (Isere), the producers of the Super-Phenix, the first 1,200-Mw prototype in the world, proudly demonstrated to the press the most spectacular operation of the construction process: the emplacement in the reactor building of the enormous 700-ton tank that has to be hoisted 35 meters above the ground. Forgotten are the violent demonstrations of July 1977!

A stroke of luck for Europe 1? For several weeks now, breeder reactors have been the subject of an unexpected controversy. This was triggered on 20 August by the National Union of CGT (General Confederation of Labor) unions having to do with atomic energy, which accused the government of wanting "to shelve" development of this new model for nuclear power plants and "strike a very severe blow to a highly advanced French technique." The CFDT [French Democratic Confederation of Labor] immediately replied that, "for at least the next 20 years, the country's energy and electricity needs do not justify the development of breeder reactors." On 3 September on L'HUMANITE's "number one," PCF [French Communist Party] economist Philippe Herzog indiscriminately ran down the government, the Empain-Schneider combine, the PS [Socialist Party] and the CFDT, all suspected of paving the way for "a premature abandonment of French technology." After France has spent some 20 billion francs--more than it did for the Concorde program--on all the research and development that has resulted in the Super-Phenix, does the government really plan to give it all up? A difficult issue but a crucial debate for the future of nuclear energy.

In fact, without resorting to breeder reactors, the nuclear option merely offers a temporary solution to the energy crisis. This is because conventional PWR's (pressurized-water reactors) waste fantastic amounts of uranium. They burn only 0.7 percent of the U-235 atoms, the only fissionable ones, that is, those liable to split in two when bombarded by a neutron, thus releasing energy. The essential component of the element, accounting for 99.3 percent of U-238, does not split under the impact of the neutrons; it absorbs them, thus transforming itself into plutonium. Used with such low efficiency, uranium reserves would be exhausted almost as quickly as oil deposits.

Unless, precisely, we resort to a breeder reactor, an amazing "boiler" that produces more fuel than it burns and which utilizes the "waste" of present-day power plants. Highly fissionable, plutonium forms the heart of the reactor, a producer of energy. About this heart, U-238 forms a "fertile shell" which the neutrons, liberated by the fission of the plutonium, transform... into plutonium. Theoretically, during its lifetime a breeder reactor produces enough plutonium to feed a second reactor and so on, ad infinitum..

Why hesitate to develop such a miraculous machine? Because it demands technical expertise equal to its performance. Plutonium is dangerous to handle, 6 kg are enough to manufacture a bomb. An accident in the breeder reactor could, according to some physicists, have consequences even more dramatic than that which occurred at Three Mile Island. Plutonium fission releases exceptionally high temperatures which pose unprecedented problems as regards resistance of the materials used and make it necessary to replace water with melted sodium as a cooling fluid. Therefore, this allows for no leave in the installation, since sodium explodes on contact with water and ignites in the air. What with the technical obstacles and skyrocketing costs, in the United States, Japan and the FRG these projects are either lagging far behind or have come to a halt.

Another obstacle: to feed the breeder reactors with the "waste" from present-day reactors, as well as to recover the plutonium they produce, the fuel that has been consumed has to be "withdrawn." Now it turns out that this withdrawal is also difficult and costly. Following the closing down of the American plants, the La Hague plant in Cote d'Alen is the only one in the world now in operation...well below its rated capacity.

The development of breeder reactors therefore raises two series of questions: questions as to their safety, regarding which the experts have differing opinions; on the technical difficulties that mean excessively high costs: the Super-Phénix will cost 10 billion francs, over twice the investment required for a conventional nuclear power plant with the same capacity. The power it produces will also cost twice as much and will be even more expensive than that produced by plants fueled with imported coal. Is there at the present time a "soft-nudging" of the development of this type of reactor? Yes, if we refer to the government's publicly-stated intentions

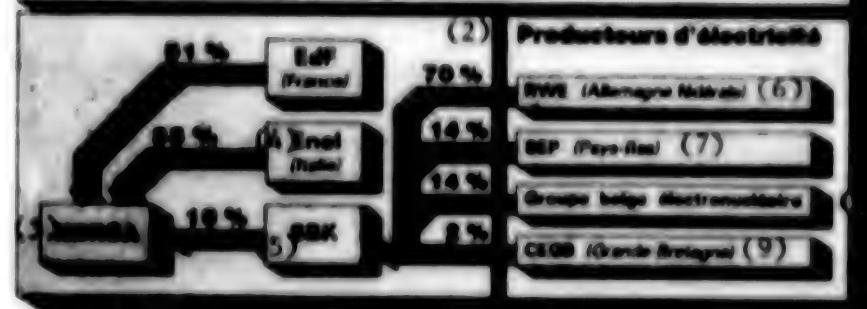
of 3 years ago. It was at that time anticipated that the EDF [French Electric Company] would be ordering a pair of breeder reactors by the end of this year, that is, without waiting for the completion and opening of the Super-Phenix, planned for the end of 1983. The difficulties they have run into and the skyrocketing of costs have led government officials, the EDF and the AEC to adopt a more cautious schedule. With the world-wide slowdown in nuclear programs, the expiration date for the exhaustion of uranium reserves has been extended. The "takeover" by the breeder reactors is not urgent. So why deprive ourselves of the information operation of the Super-Phenix will provide? All the more reason since the technical-economic report on its potential successors is not ready. Toward a more sensible utilization of uranium, the EDF is prepared to accept a 20-percent investment cost overrun. Not 100 percent, an objective NOVATOME [expansion unknown] considers to be unattainable if it is to build an exact replica of the Super-Phenix. Therefore, the installation as a whole must be redesigned to cut down costs without reducing safety and reactor output. The cost of the power produced will also depend on the cost of fuel, therefore, on the aggregate of withdrawal operations. The AEC is building in demonstration unit at Cadarache to experiment with the withdrawal of fuel from breeder reactors. Pending results, it cannot provide the EDF with a precise estimate of the cost of the "fuel cycle." All the more reason for leading French officials to modify their schedule of deadlines. Decisions on the successors to Super-Phenix will be made between 1983 and 1985.

An odd reversal of the situation: accused just a year ago of wanting to move too quickly, French officials now have to defend themselves against the suspicion of "abandonment." The election situation obviously has something to do with this new controversy. But it also reflects the conflicting points of view of the different partners to the affair: the customer and the EDF hope for a reliable and profitable project; the builder, NOVATOME, wants a quick decision and a minimum of change from [the design of] the Super-Phenix; while AEC scientists remember that untimely haste led to the fiasco of the "French technique" for natural uranium nuclear power plants. It will certainly be no accident if the future of breeder reactors raises an avalanche of statements when the EDF, AEC and NOVATOME hold a seminar from 22 to 24 September to set up a schedule and specifications for the Super-Phenix's potential successors.

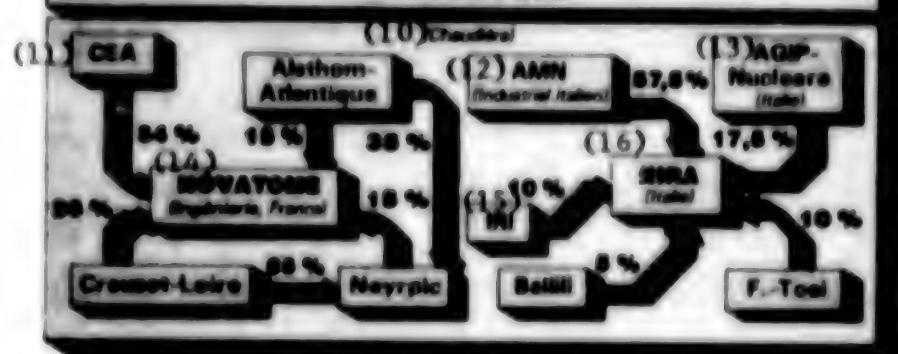
Super-Phénix Industrial Organization

La structure industrielle de Super-Phénix

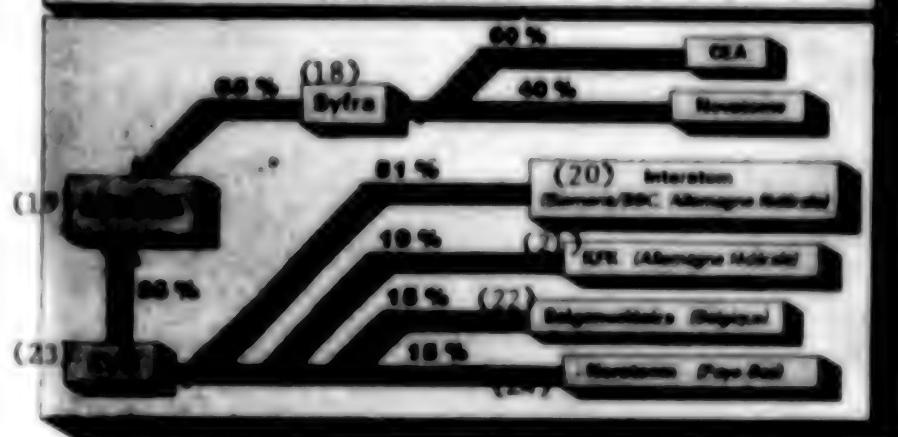
(1) Exploitation



Construction



(17) Licence



Key:

1. Operation.
2. Producers of electricity.
3. NERSA (European Fast-Neutron Nuclear Power Plant Company).
4. ENEL [National Electric Power Agency] (Italy).
5. SBK [expansion unknown].
6. RWE [Rhenish-Westphalian Electricity Works, Inc.] (FRG).
7. SEP [European Propulsion Company] (Netherlands).
8. Belgian Electronuclear Group.
9. CBGB [expansion unknown] (Great Britain).
10. Boiler.
11. AEC.
12. AMN (Ansaldo Nuclear Machinery) (Italian manufacturer).
13. Nuclear Division of Italian National Oil Company (Italy).
14. NOVATOME (Engineering Division, France).
15. IRI [Industrial Reconstruction Institute].
16. NIRA (Italian Nuclear Company for Advanced Reactors, Italy).
17. Licensing.
18. SYFRA [expansion unknown].
19. SERENA (European Company for the Promotion of Fast Sodium Reactor Systems).
20. INTERATOM [expansion unknown] (Siemens Corp./BBC [Brown, Boveri and Company], FRG).
21. KFK [expansion unknown].
22. Belgonucleaire [expansion unknown] (Belgium).
23. KVG [expansion unknown].
24. NERATOON [expansion unknown] (Netherlands).

At all levels, France plays a major role in the European Super-Phenix project. NERSA is responsible for ordering equipment and assuring expertise in the construction and operation of the Creys-Malville plant. It brings together electricity producers from six European countries and the EDF is a majority shareholder. When the Super-Phenix goes into operation, each of the producers will have access to a share of the power produced, prorated in proportion to its holdings. In March 1977 NERSA awarded the biggest contract, for the nuclear boiler, to the French company, NOVATOME, and the Italian company, NIRA. Within NOVATOME, Creusot-Loire and Alsthom-Atlantique contribute their industrial support and the AEC contributes its expertise. SERENA is the repository for the "system" perfected by the AEC and it alone is empowered to grant licenses to third parties. It is this organization which Great Britain, whose interest in the Super-Phenix has recently been noted (see LE NOUVEL ECONOMISTE, 25 August 1980), may join, for an admission fee of 50 million pounds. For the moment, Great Britain's presence is negligible.

11,466
CSO: S100

LOCAL COUNCIL REQUESTS CLOSURE OF NUCLEAR PLANT

Naples IL MATTINO in Italian 14 Sep 80 p 9

[Unattributed article: "No to the Nuclear Plant"]

[Text] Latina--With a unanimously approved decree, the Castelforte community council has called for the definitive deactivation and closure of the Garigliano electronuclear plant. The same council has also undertaken to use all the means at its disposal to interdict the eventual creation of a "nuclear cemetery" in the zone in question for the storage of radioactive wastes produced by the plant.

Furthermore, the council requested the mayor of the commune to ask the prefects of the provinces of Latina and Caserta to make known the directives called for by the "emergency plan" drawn up in case of nuclear accidents, as stated in a recent provision from the Ministry of the Interior.

The deliberations of the Castelforte communal council formalized the requests made during the last few days by the local "pro-salute pubblica" committee, which made known its concern over the precarious state of security of the electronuclear plant, which is located on the left bank of the Garigliano River. The plant has been closed for 2 years due to a malfunction of the steam secondary circuit generator.

During the discussions, mention was made of the resolutions adopted last November by the provincial administration of Latina in which the provincial council unanimously requested organs of the national Parliament to form a commission of inquiry to certify the plant's actual status. The commission was not formed, nor was a commission at the provincial level formed.

Regarding events that affect the electronuclear plant of Garigliano, the commune of Castelforte and the adjoining commune of Santi Cosma e Damiano have been for some time waging a battle which has been hindered by conflicts of jurisdiction of the areas in question. The plants in fact, though in close proximity to inhabited centers of the southern

section of the province of Latina and therefore of lower Lazio, in reality are located in the commune of Sessa Arunca in the province of Caserta and therefore part of the Campania region.

So far attempts to implement coordinated action with the Campania commune to guarantee the zone's security have been in vain. For its part, the section head office of ENEL [National Electric Power Agency] in Naples has time and again stated that there is no cause for alarm for the goings on at the plant, where repairs to the reactor have recently been completed. These repairs are now being examined by CNEN [National Nuclear Energy Commission] experts who will decide whether or not the plant may begin operating again. ENEL has furthermore denied the existence of a plan to construct a "nuclear cemetery" in the zone.

9209
CSO: 5100

SWEDEN

NATIONAL POWER ADMINISTRATION: MORE NUCLEAR PLANTS NOT NEEDED

Stockholm DAGENS NYHETER in Swedish 26 Sep 80 p 6

[Article by Borje Karlsson]

[Text] Sweden will have an electricity surplus of between 8 and 15 tWh (billion kilowatt hours) every year during the 1980's. This is indicated in new projections from the National Power Administration.

"The projections show that it would be very wasteful to build the last two reactors in the nuclear power program," said Lennart Daleus, chairman of the popular campaign.

The National Power Administration estimates that electricity consumption in this country will rise from 99 terwatt hours in fiscal 1980/81 to 129 tWh by 1990/91.

In 1981/82--when another four reactors will go into operation--there will be a surplus of 8 tWh. This will increase to 15 tWh in 1985/86 when the last two reactors, Forsmark 3 and Oskarshamn 3, are ready. Together they will produce 12 tWh a year.

The surplus will later decline to 9 tWh in 1990.

The reason for the big surplus is that earlier the National Power Administration and the power industry counted on a much larger increase in electricity consumption in the 1980's.

Electric Heat

Now the Power Administration wants to use the surplus to heat homes and industries, thus reducing oil consumption. And the Power Administration and Southern Power want to continue expanding nuclear power--in order to offset future energy crises.

"It is not much trouble to go over to using electricity in district heating systems," said Ingvar Wivstad, technical director with the

National Power Administration. "Investment costs are so low that there is no risk that we will be firmly committed to a heating system based on nuclear power for all eternity."

Member of parliament Birgitta Dahl, the Social Democrats' energy expert, has not yet studied the Power Administration's forecasts and did not wish to comment on them.

"But even if we get an electricity surplus we must invest in renewable sources of energy and more efficient and economical usage," she stressed.

Dahl does not feel the non-socialist government has pursued this with sufficient effort.

Flexible Systems

Dahl feels it is all right in a transitional period to use electricity to reduce our dependence on oil and avoid the use of more coal. But this should not lead to direct electrical radiators becoming common again, she said, it means we must have flexible systems that can utilize new energy sources.

The question of a ban on direct electricity in new homes is being studied at the moment by Hadar Cars (Liberal). By the end of October a proposal will be submitted to the government.

Member of parliament Per Unckel (Conservative)--campaign leader for Line 1 in the referendum--said a total ban on radiators would be unfortunate.

Electricity Beneficial

"In many ways direct electricity is superior to other heating forms," he said. "For instance investment costs are very low."

Per Unckel had this to say about the electricity surplus:

"We knew we would have a certain surplus in the early 1980's and that later there would be some 'drag' as a result of the economic problems we have. The economic expansion we were hoping for did not materialize.

"But it would be wrong to come to the conclusion that we have too much electricity--and just as wrong to decide that reactors 11 and 12 should not be completed.

"By using the 'extra' electricity we can further diminish our dependence on oil which is unacceptably high now and will in the near future be our biggest energy problem," Unckel said.

Lennart Daleus of the popular campaign against nuclear power is concerned about the consequences an electricity surplus could have. The nation's dependence on nuclear power will increase and alternative energy sources will be neglected, he said.

"Wind power has no chance of competing with cheap electricity from the nuclear power plants. The power companies will certainly lower rates to get rid of all that electricity," Daleus said.

He went on: "During the referendum campaign we said we would have a surplus of electricity. The projections of the National Power Administration prove we were right. Now the politicians should be honest enough to review the nuclear power program.

Reactor Freeze

"The eleventh and twelfth reactors are not needed but unfortunately a lot of prestige is involved in their construction," Daleus said.

Director Wivstad of the National Power Administration does not believe electricity rates will be lowered. This area is not ruled by the same price mechanisms as the product sector, he said. Electricity rates are based on costs.

"It is also a question of how many taxes the state imposes on top of costs," Wivstad said.

Per Unckel said: "It is not entirely unlikely that electricity prices will go down. The total energy bill will not be cheaper under any circumstances. Oil prices continue to rise."

At the Energy Ministry--headed by politically unaffiliated cabinet member Carl Axel Petri--they do not feel the electricity surplus will make it harder to eliminate nuclear power or that it will delay the development of alternative types of energy.

"In the near future hundreds of millions will be invested in commercial utilization of alternatives," said a ministry spokesman. In a month a government bill will be submitted on the so-called oil replacement fund. In the first year 300 million kronor will be provided according to the study committee's proposal and later the figure will rise to 500 million.

The figures could be higher if the government decides to eliminate the special energy-saving subsidies at the same time.

6578
CSO: 5100

END

**END OF
FICHE
DATE FILMED**

November 5, 1980

D.S.